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## Making Steel Without Using Pig Iron

"Scrap and Carbon" Basic Open-Hearth Process as Employed at an Eastern Plate Mill—Residual Manganese an Essential Feature

BY EDWIN F. CONE

INDEPENDENT of fuel or pig iron scarcity, a Pennsylvania producer of steel plates is operating at 100 per cent capacity, and in August broke its record in open-hearth output. It has been known for some time that the Central Iron & Steel Co., Harrisburg, Pa., was making steel in a manner different from the practice at any other open-hearth plant in the country. Various reports concerning the metallurgical operations have gained currency, some of them entirely at variance with the actual procedure. With a view to presenting the facts, the writer visited the plant and secured information for this article from Robert H. Irons, president of the company; Robert M. Keeney, general superintendent; Sidney D. Williams, superintendent of the open-hearth department, and Ashton D. Peace, engineer of tests.

Basic open-hearth steel of high quality is being produced daily at Harrisburg without the use of any pig iron, but entirely from scrap. In fact, no pig iron has been used in the company's six large open-hearth furnaces since late in 1918. Three blast furnaces on the property, which have been idle since late in the war, are mute testimony to what has been going on in the steel department.

Steel has been made in basic open-hearth furnaces without the use of pig iron in several other instances. The substitution of petroleum coke for pig iron was practiced by several American companies during the war, as it had been here and there in years previous, and it is still followed to some extent on the Pacific Coast, where the dependence of

steel companies is chiefly on scrap. At various other plants also departures are being made from the established pig and scrap process; but the Central Iron & Steel Co.'s practice differs from them all.

The first reaction to the statement that pig iron is eliminated and only scrap is the basis of a heat is likely to be criticism. It has been the common

view that quality steel could not be made in open-hearth furnaces except virgin iron, as pig iron, was a part of the charge. Yet high grade tool and alloy steels are made in electric furnaces in which not a pound of pig iron is used. It is possible to produce by an all-scrap process quality steel in quantity in basic open-hearth furnaces and at a low cost. The Harrisburg company has been doing this for more than four years, and under several sets of exacting specifications. To-day it is shipping tank, fire box, boiler and other grades of plate into Pittsburgh and the Middle West and into other markets not commonly regarded as tributary.

The steel-making process under which the Central Iron & Steel Co. is operating is covered by a process patent

(U. S. 1,345,192—June 29, 1920), granted to Robert H. Irons and assigned to the company. Patents have been allowed in various other countries and some foreign applications are pending. The distinguishing feature of the process is the maintenance of a high residual manganese throughout the period of the heat.

For several years the use of manganese-bearing pig irons in open-hearth practice has been advocated, and the subject has been discussed in various papers before the American Iron and Steel Institute and the American Institute of Mining and Metallurgical Engineers.\* The presence of certain quantities of manganese during the melting down period now characterizes the operation both in acid and basic open-hearth steel making at many plants. The practice at Harrisburg may be considered as the

*TWO facts are outstanding in connection with the open-hearth process described in this article.*

*One is the advantage of independence of pig iron supply, which is emphasized in this time of fuel shortage. The other is the key feature of the operation, namely, the maintenance of residual manganese throughout the heat.*

*A charge consists of varying proportions of the following raw materials:*

Scrap steel  
Scrap iron  
Manganese ore  
Carbon as river coal, coke or charcoal  
Lime

*For the past four years plate steel has been made at Harrisburg without the use of any pig iron.*

\*"Utilizing Domestic Manganese Supplies," THE IRON AGE, Nov. 29, 1917, p. 1291; "Manganese in the Basic Open-Hearth," THE IRON AGE, Nov. 29, 1917, p. 1305; "Manganese Conservation in Steel Making," THE IRON AGE, June 6, 1918; "Manganese Alloys in Open-Hearth Practice," THE IRON AGE, May 22, 1919, p. 1363; "Use of Manganese Alloys in Open-Hearth Steel Practice," THE IRON AGE, April 17, 1919, p. 1012, and "High Manganese Iron in Basic Open-Hearth Practice," by E. A. Wheaton, THE IRON AGE, Oct. 28, 1920, p. 1112.

development of this feature to its largest possibilities.

Two well-known features of open-hearth practice are at once recognized in reading the patent. First, the use of carbonaceous matter to reduce the charge of pig iron; second, the use of manganese-bearing materials, thereby bringing about the elimination of sulphur as manganese sulphide, and securing the advantage of tapping with a high residual manganese. The patentee claims that steel made by his process is of superior quality by reason of the high residual manganese and the care with which the steel is made, and that it has several advantages over steel made by the ordinary pig and scrap process.

To secure this residual manganese, high grade manganese ore from Brazil is regularly a part of each charge. About 2 to 2½ tons is ordinarily used in a 90-ton heat. The reduced manganese from the ore is alloyed with the steel, the slag being at the same time brought to the point of saturation with manganese. The desired manganese in the bath is

the plant. The coal is carefully washed, dried and screened and used in each charge in varying proportions with the scrap and other materials. It furnishes carbon and plays other lesser rôles in the refining process. The same coal at present is fired under boilers to raise the steam used in the plant.

The purifying effect of the residual manganese, which is the key to the success of this unique "scrap and carbon" process, is not a new principle, but the method of its application is. All ingots are bottom poured, requiring a metal of high temperature. Special features in the construction and operation of the furnaces make the attainment of this temperature easy and the presence of the manganese prevents oxidation. The surface of the ingots is unusually smooth, with piping and blowholes at a minimum. Although a larger slag volume is carried than in the regular pig and scrap method, there is no difficulty in operating the heats for one acquainted with all the details and refinements of the process.

Heats are regularly made not exceeding 0.05 per

Table of Certified Physical and Chemical Tests of Fire Box and Boiler Steel Plate Made by Central Iron & Steel Co.

Heat No.	Description of Plate	Dimensions of Test Piece			Yield Point Lb. Per Sq. In.	Ultimate Strength Lb. Per Sq. In.	Final Elongation-Reduction		Carbon Per Cent	Manganese Per Cent	Phosphorus Per Cent	Sulphur Per Cent
		Width, In.	Thickness, In.	Area, Sq. In.			in 8-In. Per Cent	of Area Per Cent				
12003	392 x 48 x ½	1.575	0.377	0.594	37710	55220	33.0	63.0	0.15	0.46	0.017	0.037
12017	131 x 52½ x ½	1.535	0.375	0.576	38720	58520	28.0	56.2	0.16	0.30	0.016	0.040
22209	132 x 42 x 1½	1.500	1.250	1.875	35700	52590	29.0	57.3	0.15	0.31	0.016	0.034
22218	245 x 49 x ½	1.490	0.385	0.574	35300	57800	28.0	61.7	0.16	0.35	0.017	0.040
22231	328 x 54½ x ½	1.575	0.385	0.606	37470	62210	28.0	60.4	0.22	0.33	0.017	0.032
42067	229½ x 87½ x ½	1.570	0.585	0.919	35000	59600	32.0	58.2	0.20	0.48	0.016	0.034
42070	132 x 42 x 1½	1.465	1.250	1.838	35200	52990	30.0	56.5	0.12	0.36	0.018	0.030
42074	228 x 72½ x 53125	1.440	0.546	0.786	35300	59800	30.0	61.8	0.19	0.34	0.018	0.037
52101	245 x 49 x ½	1.420	0.428	0.608	35000	60300	30.0	60.5	0.20	0.45	0.015	0.030
52108	318 x 52½ x ½	1.585	0.383	0.645	37370	59550	28.0	62.8	0.18	0.50	0.019	0.040
52109	492 x 54½ x ½	1.575	0.377	0.594	39060	63470	27.0	56.2	0.20	0.46	0.016	0.035
52118	318 x 52½ x ½	1.570	0.365	0.573	35430	55330	33.0	65.4	0.16	0.50	0.017	0.040
52126	104½ x 104½ x 1½	1.510	0.692	1.045	35120	55400	31.0	57.9	0.18	0.42	0.016	0.030
52127	220 x 81½ x ½	1.540	0.440	0.678	35200	55160	32.0	67.5	0.16	0.39	0.022	0.040
52128	247½ x 88½ x 1½	1.485	0.681	1.011	35400	55390	35.0	60.4	0.18	0.39	0.018	0.040
52136	228 x 107½ x 48	1.480	0.475	0.703	35560	59320	34.0	58.1	0.19	0.50	0.022	0.040
62104	187½ x 64½ x 44	1.410	0.443	0.625	35300	55200	34.0	61.6	0.18	0.48	0.015	0.037
62106	190½ x 64½ x 44	1.450	0.436	0.632	35200	58300	29.0	65.2	0.17	0.42	0.017	0.034

thus obtained, and at the time when the heat is ready for tapping the amount of residual manganese is fairly constant at 0.15 to 0.30 per cent. To prevent the steel from losing any of this residual manganese because of insufficient oxide of manganese in the slag, the capacity of the slag in lime and oxide of iron is increased which, combined with the manganese oxide acting as a base, exerts the desired effect on the manganese of the bath.

The rôle of this residual manganese is two-fold: First, its presence during the whole refining operation prevents any oxidation of the iron in the bath; second, it is an important factor in eliminating sulphur.

Aside from the manganese ore and the regular and necessary amount of lime, the charge is made up of scrap steel and scrap iron in proportions varying from 60 to 90 per cent of the former and from 40 down to 10 per cent of the latter, largely heavy melting grades. The regulation of the mixture depends on market conditions and requires a constant study of the price and availability of the scrap brought in from outside. The flexibility of the charge is its feature, it being possible to make a heat with 90 per cent steel scrap or up to 40 per cent scrap iron, with no variation in quality.

Another factor in the charge is carbon in the form of coal, coke or charcoal, the amount depending on conditions. A most interesting feature of present operations is the use of river coal, really buckwheat anthracite. Tons of this are being taken daily from the Susquehanna River, which parallels

cent in sulphur, more often much less, and the phosphorus content is normal. Physical tests, made by inspectors representing railroads, the Government and other buyers, reveal a high elongation and reduction of area. Typical results from the company's records, taken at random, are given in the table. In fact it has been a surprise to the operating forces to find that steel made by this process has higher properties than steel of the same analysis made in the old way. The management states that yields are larger than in the former practice, and the fact that the total rejections of finished plates, including shipping errors, shearing mistakes, qualities of the steel, etc., are less than three-quarters of one per cent of the finished product, justifies the management's statements as to larger yields. In other words, 99.25 per cent of the finished product as manufactured meets all requirements.

The stage to which the process has been brought has not been reached easily. Many difficulties have had to be overcome, and success requires constant watchfulness and a high-grade organization with an open mind. The results represent seven years of operation and research on the part of the inventor, together with large expenditures for experimental purposes.

Equipped for the use of either producer gas or oil, the furnaces are largely using fuel oil. River coal supplies other needs besides its rôle in the steel making. Coke is unnecessary in any department, and pig iron is and has been a stranger outside the gates for several years.



## IMPORTANT COAL TOPICS

### Southern Ohio Pig Iron and Coke Association Considers Various Problems

The August meeting of the Southern Ohio Pig Iron and Coke Association was held at the Marting Hotel, Ironton, Ohio, Aug. 29. The meeting was called primarily to discuss the present coal situation, and after hearing reports from various members of the association, it was decided that, inasmuch as the volunteer and appointed coal committees were ceasing to function, any matters pertaining to fuel in the southern Ohio territory should be taken up direct with the Interstate Commerce Commission, and the following telegram was despatched to the secretary of that body:

The members of this association operating a number of blast furnaces and by-product coke plants in southern Ohio and eastern Kentucky believe that the opening of Ohio, Indiana and Illinois mines has modified conditions which brought about your Service Order No. 23. Conservation of transportation facilities will mean the forwarding of coal from these short haul mines to the Great Lakes and Northwest, thereby releasing for industrial purposes the by-product coal of West Virginia and eastern Kentucky. We therefore urgently ask that immediate consideration be given to the amendment of Service Order No. 23, whereby this coal will resume its usual course of consumption. Only by this action do we believe complete paralysis of the pig iron and steel industry in this district will be averted.

### Good Work of Blast Furnaces

A most interesting discussion regarding the good work done at blast furnaces in the district took place, and it was the consensus of opinion among the operators that a great deal of the credit can be traced to the good, clean coal supplied to the coke plants. The association is pushing its activities along this line among the coal operators and is meeting with fairly satisfactory co-operation.

It was forcibly brought out at the meeting that the shipment of high volatile coal from West Virginia and Kentucky to the Northwest, as railroad fuel and domestic fuel, was a most wasteful diversion of coal that should go direct to the coke ovens. The long haul across two or three States and the shipment by boat required so much fuel and so much coal car capacity that it seemed a shameful practice. The members all advocated as short and direct a haul as possible so that coal cars would be kept on the home lines, especially in the production of by-product coke. The need for shipping clean coal as a matter of conservation of car supply was also brought out.

### Elevating the Coal Industry

An interesting discussion on the question of having the coal industry put on the same high plane as that of the iron ore industry, took place. President Sweetser felt that if the same attention was given to the quality and the marketing and the mining of coal as is given to the iron ore trade, there would be no such confusion and difficulties as now prevail in the coal industry. More attention should be paid to shipping the kind of coal best suited to the needs of the consumer. W. D. McKinney, secretary of the Southern Ohio Coal Exchange, thought that if the Government would license coal mines and give each mine a number which would follow a car of coal through to the ultimate consumer, there would be some kind of responsibility attached to a car of coal as is now attached to a car of iron ore. Although some of the members thought it would be too great a job to educate 15,000 wholesale coal men in the country, it was felt that much good could be done by hindering the shipment of coal from mines that furnished notoriously inferior coals.

F. W. Davis of the Bureau of Mines explained the experiments that are being conducted on the combustibility of coke, and also described some of the experimental work planned by the bureau. The association voted that complete co-operation would be given to the bureau, especially in the experiments that are going to be conducted at the blast furnaces of one of the members.

Five new members were elected, these being Dr. Lowry, Ironton; C. E. Burch, and C. O. Brown, Jackson; Henry Willard, Wellston, and Thos. DeVenny, of the Portsmouth By-Product Coke Co.

Reports submitted to the association showed that 14 of the 17 blast furnaces represented are blown out or banked on account of coal shortage.

In the evening, the customary dinner, presided over by President R. H. Sweetser, was held, at which addresses were made by members of the association and their guests. A nominating committee was also appointed to draw up a list of officers which will be submitted to the annual meeting to be held later in the month.

### Program for Montreal Meeting of American Electrochemists

The program for the annual fall meeting of the American Electrochemical Society at Montreal, Canada, Sept. 20, 21 and 22, is announced in part as follows:

*Wednesday, Sept. 20*

6:00 p. m.—Registration at Windsor Hotel.

*Thursday, Sept. 21*

10:00 a. m.—Session for reading and discussion of papers:

"Effect of Heat Treatment on the Hardness and Microstructure of Electrolytically Deposited Iron," by Norman B. Pillings.

"The Preparation and the Mechanical Properties of Vacuum Fused Alloys of Electrolytic Iron with Carbon and Manganese," by R. P. Neville and J. R. Cain.

"The De-Zincification of Brass," by Ralph B. Abrams.

2:00 p. m.—Session on "Industrial Heating": Bradley Stoughton, chairman, electrothermic division:

"The Underlying Principles of the Industrial Heating Problem," by Charles P. Steinmetz.

"Electric Heat: Its Generation, Propagation and Application to Industrial Processes," by E. F. Collins.

"Principles of High Temperature Furnace Design," by E. J. Smalley.

"Advantages of Industrial Electric Heating," by Wirt S. Scott.

"Some Electrical Properties of Alloys at High Temperatures," by M. A. Hunter and A. Jones.

"Resistivities of Some Granular Resistor Carbons," by C. E. Williams.

"Heat Insulating Materials for Electric Heating Apparatus," by J. C. Woodson.

*Friday, Sept. 22*

9:30 a. m.—Session on "Industrial Heating": Part II:

"Methods of Economically Handling Materials in Electric Furnaces," by Frank W. Brooke.

"The Development of Industrial Electric Heating for Low Temperature Enameling," by Wirt S. Scott.

"Treatment of Ceramics," by E. T. Smalley.

"Electric Annealing of Malleable Iron," by C. E. Gibson.

"Electric Steam Generators and their Application," by P. S. Gregory.

"A New Type of Induction Furnace," by J. Murray Weed.

"A Simple Electric Crucible Furnace for Melting Aluminum," by A. Glynne Lobley.

2:00 p. m.—Reading and discussion of papers on miscellaneous electro metallurgical subjects.

8:00 p. m.—Smoker at Windsor Hotel.

11:30 p. m.—Special Excursion to Shawinigan Falls. Train leaves Windsor Station at 11:30 p. m. The return train from Shawinigan Falls will arrive in Montreal on Saturday evening in ample time to permit members wishing to make connections for all through night trains to Toronto, Buffalo, Niagara Falls, Chicago, New York, Boston, Philadelphia, Washington, et al.

An illustrated lecture by Prof. A. S. Eve, on "The New Philosophy of Physics," will be given Thursday evening.

Underneath the Ore Bins, Showing the Continuous Line of Segmental Gates for Filling the 80-Cu. Ft. Capacity Scale Car, Which Appears in the Background



## Blast Furnace Rebuilt to Save Labor

Mechanical Charging Equipment Installed on 17 x 75-Ft.  
Furnace of Emporium Iron Co.—New Bins and  
Pig Casting Machine

**B**UILT during the years 1887-88, the plant of the Emporium Iron Co., Emporium, Pa., has operated since that time with substantially the original equipment. During the past year, however, the old hand-filling system has been replaced with a complete new set of storage bins, skip bridge, furnace top, etc. The furnace has been relined and partially remodeled, and new mechanical pig casting equipment installed. Arthur G. McKee & Co., Cleveland, as engineer and contractor for the reconstruction work, did the designing and erection.

The alterations to the furnace below the mantle consisted of installing a new hearth jacket, 8 ft. deep by 16 ft. 4 in. inside diameter, made up of 1½ in. steel plate. Twenty-one cast iron hearth cooling plates were provided, approximately 8 ft. long by 2 ft. wide and 3 in. thick. The old copper coolers were utilized, no new copper being furnished. Eight new tuyere stocks were installed, including elbows, blow pipes and base castings for attaching to the bustle pipe.

The storage bin and trestle structure, of steel and reinforced concrete, is approximately 432 ft. long. The coke bin, occupying three bays in the trestle structure, is 48 ft. in length and is made up of steel plate sides and bottom, suspended from the concrete bents. This coke bin is centrally located, discharging direct into the skip car, over cascade type coke screens.

Eight ore and limestone bins of the Baker suspension type were installed, each bin being approximately 12 ft. in length and constructed of ¾ in. steel plate sides and bottom. The bins are provided with a continuous line of segmental type gates arranged for convenient operation from the scale car platform, and discharge into an 80 cu. ft. capacity scale car, which delivers the material to the skip pit. The scale car is of heavy construction, electrically driven and equipped with air brakes.

The charge is carried to the furnace top in a skip car of 80 cu. ft. capacity, traveling on a single track skip bridge, which is provided with deck plates to prevent materials falling through to the ground. The skip is supported by a hinged leg from the furnace top platform, and rests on the old hoist tower as an additional means of support. At the upper end of the skip bridge is provided a sheave platform with a 5 ft. diameter cast iron sheave for accommodating the 1 in. plow steel skip hoist cable, idler sheaves being placed at different points along the bridge. A 12 x 12-in. single drum Otis hoisting engine was installed in a brick hoist engine house, having concrete foundations and steel roof supports.

No changes were made to the existing furnace shell, a new top ring casting being furnished to fit the present design. There was also provided a new large bell hopper, made of cast steel in four sections, and a new gas seal of ½-in. steel plate with cast steel bottom ring and cast iron top ring. The gas seal contains two hinge type manholes, 30 in. in diameter, for removal or inspection of the small bell.

On top of the gas seal is mounted a McKee revolving stock distributor, consisting of small bell, bell hopper, small bell rod, ball races and drive mechanism. For its operation a 7½-hp. Crocker-Wheeler, 220-volt, d.c. motor was supplied, located on the furnace top platform and inclosed with proper housing. Control of the distributor is accomplished automatically by means of a limit switch connected to the hoist engine drum.

The furnace charge is discharged from the skip car into a receiving hopper constructed of ¾-in. steel plate and provided with ½-in. wearing plates. Directly beneath this receiving hopper is a revolving hopper, which is of ¾-in. steel plate and which attaches to and revolves with the distributor.

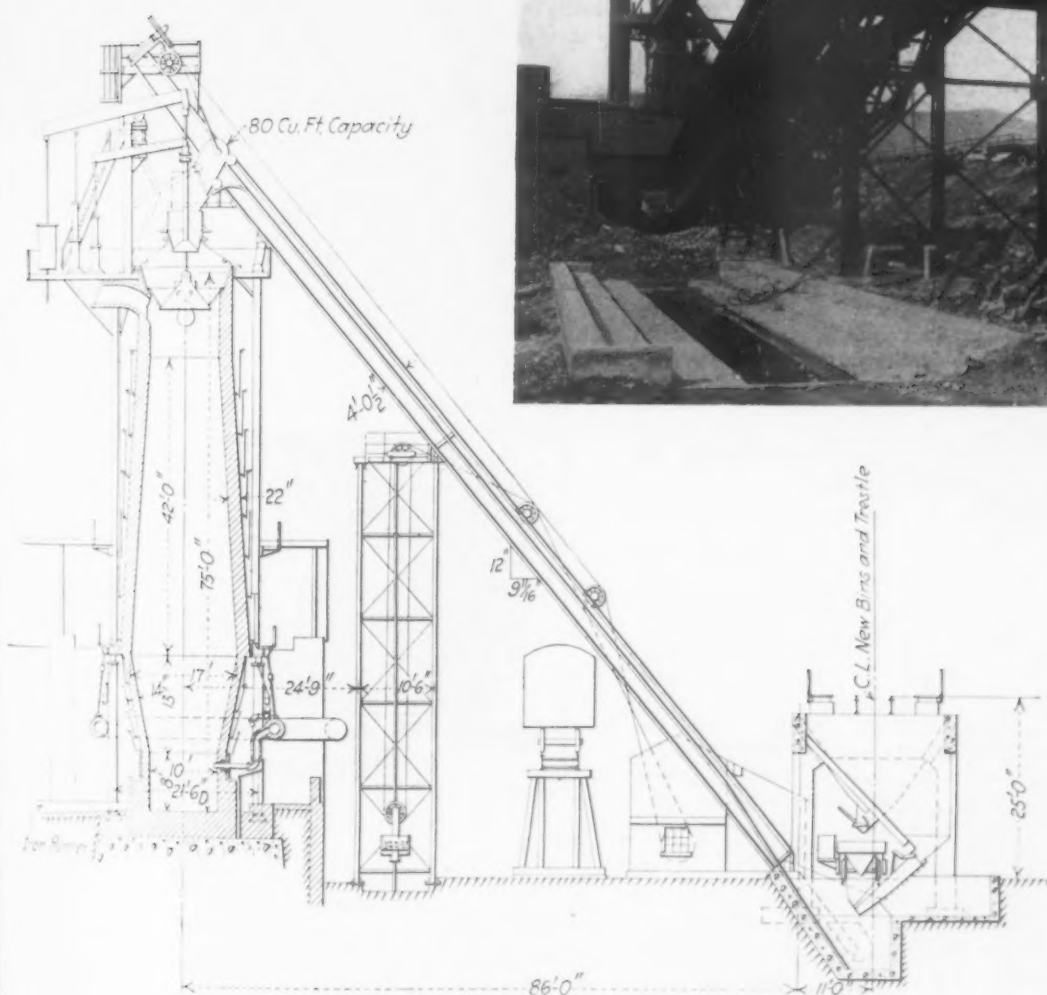
An entirely new furnace top platform was erected.



Supported on the top platform is a hand operated jib crane for raising and lowering the large bell, hopper and other equipment. The operation of the large and small bells is accomplished by means of a bell rig mounted on the furnace top platform and consisting of 14-in. and 10-in. steam cylinders, bell beams, counterweights, bearings and shafts. A modern test rod mechanism and indicator were also installed.

In the cast house, new iron and cinder runners were provided. The iron pours into a 50-ton Pugh type hot metal car and is then transported to the pig casting machine. The latter is a single strand machine furnished by the Pittsburgh Coal Washer Co. It has a speed of approximately 20 ft. per min., carrying one pig mold per foot of chain, each mold casting a pig weighing from 100 to 125 lb.

At Right—Delivery End of the New Single Strand Pig Casting Machine, Showing Chute for Loading the Cast Pig into Cars Below — Section Through the Furnace, Showing the New Skip Bridge, Furnace Top and Storage Bins and Their Relations to Each Other



### Employment at Bridgeport

According to the report from the Manufacturers' Association of Bridgeport, Conn., based on the number of employees in 31 Bridgeport factories, industrial activity reached its ebb on Jan. 7, last. From previous data three figures were determined which are to represent the estimated normal as follows:

<i>Estimated Normal</i>	
Number of employees.....	25,318
Number of man-hours.....	1,240,582
Number average factory hours per week..	49

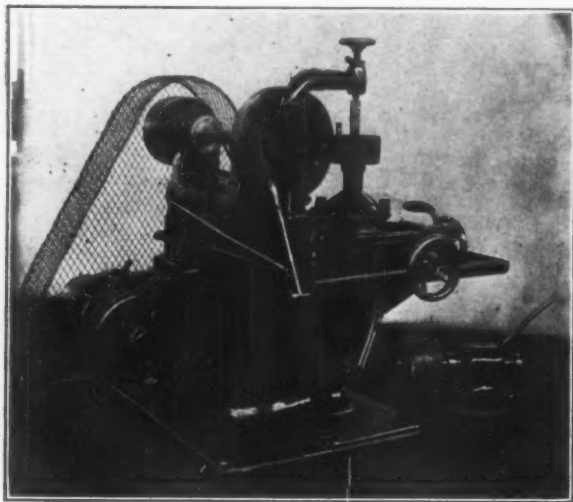
The data show the gradual decline and subsequent increase in all three of these figures over the period

from Feb. 5, 1921, to Aug. 31, 1922. On the first date, Feb. 5, the number of employees was 17,392, or 68.6 per cent of the normal. The gradual decline reached low mark on Jan. 7, 1922, with 10,346, or 40.9 per cent of normal. Thenceforth, the number increased steadily with a single break in July to 15,869, or 62.7 per cent of normal for Aug. 26. The percentage of man-hours for the starting date was 54, and the average factory hours per week 81.2 per cent, falling to 32.4 and 80.8 per cent, respectively, then rising to 62.9 and 100.4 per cent, respectively. The average number of hours worked per employee last week was 49.2, or 0.2 hour above the estimated normal.

### New Pulley-Grinding Machine

A machine to produce convex, flat or concave faces on pulleys, wheels, rollers and similar pieces and with which the edges may also be faced by using the attachment provided, has been brought out by the Diamond Machine Co., Providence. Pulleys or similar castings ranging from 2 to 18 in. in diameter, and with faces 1 to 6 in. wide may be ground.

Among the advantages claimed for the machine are high production, less metal required to be removed, and better surface obtained. The metal is cut at the rate of 300 linear ft. per min. and fixtures are provided for quickly setting up and taking down the work.



Machine Designed for Grinding Pulleys Having Either Crown or Straight Face

As an example of the production it is stated that 6-in. pulleys with  $\frac{3}{4}$  in. face have been ground in 24 sec. to  $2\frac{1}{2}$  min. and 8-in. by 4-in. pulleys in 1 min. 50 sec. to 4 min. and 20 sec., the time varying according to stock removed and finish required. Pulleys 12 in. by  $\frac{3}{4}$  in. have been ground in approximately  $2\frac{1}{2}$  min. In the company's own production the grinding time from floor to floor on 18 in. by  $4\frac{1}{2}$  in. pulleys was 10 min. each; and on 9 in. by  $4\frac{1}{2}$  in. pulleys, 3 min. each.

A substantial chuck, 15 in. outside diameter, with an abrasive wheel 14 in. outside diameter, 1-in. face, constitutes the grinding unit. The spindle is mounted in ball bearings and runs at 1500 r.p.m. Cutting speeds may be varied by changing the back gears. The machine is driven by a 10 hp. 1800 r.p.m. motor, with silent chain drive to the spindle.

The floor space occupied is  $3\frac{1}{2}$  by  $4\frac{1}{2}$  ft. and the weight of the machine approximately 2000 lb. The height of the spindle from the floor is 44 in. The machine is equipped with a vertical spindle pump provided for wet grinding, which has an adjustable spray nozzle, and ample passages to the sediment tanks.

The edge-facing attachment can be put on or removed in 2 or 3 min. and heavy permanent dowels, as well as large holding-down screws are incorporated to assure alinement with the machine. The weight of the attachment is about 50 lb.

The Morris Metal Products Co., with plants at Bridgeport, Conn., was purchased Aug. 31 by Kenneth W. McNeil, president Karm Terminal Co., Bridgeport, for \$220,500. The property was sold by order of the United States District Court. The purchase includes three manufacturing buildings, including a two-story 190 x 373 brick and steel machine shop structure.

Powdered coal will be used for the new Cahokia station of the Union Electric Light & Power Co., St. Louis. The equipment will be provided by the Combustion Engineering Co., 43 Broad Street, New York, and will include 10 Raymond six-roller low side mills for grinding the coal.

### Decrease in German Coal Output

The increasing importation of British coal into Germany is due primarily to the decrease in German production which has been going on steadily since March, when the peak of post-war production was reached, says Vice-Consul Davis, Berlin, in a report to the Department of Commerce. Statistics of production for the first five months of the year are here presented:

Months	Working Days, Number	Total, Tons	Production Daily Average, Tons
January .....	25	8,132,763	322,090
February .....	24	7,737,974	322,416
March .....	27	9,014,278	333,862
April .....	23	7,512,646	326,637
May .....	26	8,081,951	310,844

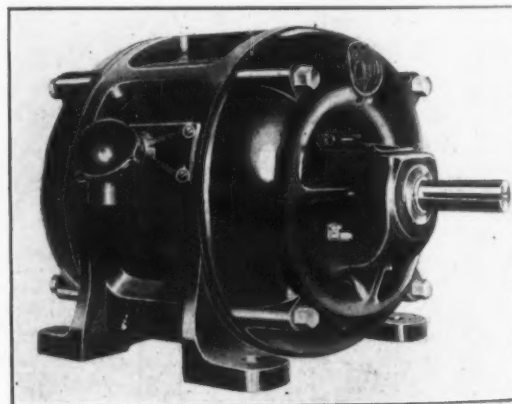
Mr. Davis's report states it is estimated that the average daily production for June will be less than 300,000 metric tons. German industrial circles, the report continues, are much concerned over the constantly rising cost of German coal as compared with British.

Statistical reports show fuel exports from Germany to be greater than before the war, and the suggestion has been made, both in the Reichstag and in the press, that all exports of coal be forbidden in order that the needs of German industry may be met without resort to imported fuel. The total export of coal from Germany in 1921 was about 26,500,000 metric tons, including 18,000,000 tons delivered as reparations.

### New Squirrel Cage Induction Motor

A squirrel-cage induction motor for which broad claims are made, in view of the incorporation of new ideas in motor design, has been placed on the market by the Electric Controller & Mfg. Co., Cleveland. The advantages claimed include not only mechanical features, but also increased efficiency, power factor and torque.

Careful manufacture is a feature emphasized and in assembling the various parts of the machine no filing or fitting is permitted, the parts being built to fit or being rejected. To assure rigidity and alinement



New Squirrel Cage Induction Motor

the stator frame is cast around the stator laminations. Shrinkage of the frame after pouring puts the laminations under heavy pressure and eliminates the tendency of the motor to become noisy. The frame is of the skeleton type, the major portion of the stator laminations being exposed to the air. Fan blades are used on only a few of the 900 r.p.m. machines and no fan blades are employed on the 1200 and 1800 r.p.m. motors, as most of the cooling is done by the direct contact of the laminations with the air.

Stator windings are impregnated twice, once after the coils are wound and again after the stator is assembled and wired. All coils are form-wound and open-slot construction is used. Bearings are large and each bearing has two oil rings, one of which is said to be sufficient to lubricate adequately, the extra ring being employed as a safety factor. The oil wells are made unusually large to give further protection against hot bearings.

The rotor has cast end rings and the shaft is said to be larger than standard practice demands.



# Metal Wool and Methods of Making It

## Processes Vary With Raw Materials Used—Shaving a Steel Wire—How the Specialized Apparatus Operates

BY L. W. MOFFETT

DEVELOPMENT of the art of manufacturing metal wool is interestingly reflected in specifications on file in the Patent Office in Washington. Yet but little is known generally of the process of manufacture. The product is employed in a variety of ways as a cleaning and abrasive agent. Among the purposes to which it is put are the grinding and polishing of objects; cleaning floors; and in applying lubricant to car axle journals, with cotton waste or other

8, 1919, their machine successively removes shavings from the surface of a steel wire. The shavings are of suitable fineness so that when bunched together in a mass they constitute steel wool. This being among the later methods of producing steel wool, a description of this process will afford a clear idea of how the art has developed.

The invention resides in the provision of mechanism adapted to produce steel shavings at a rapid rate, by

Fig. 1 (Top). Side View of Paton and Koenig Machine Set Up for Operation

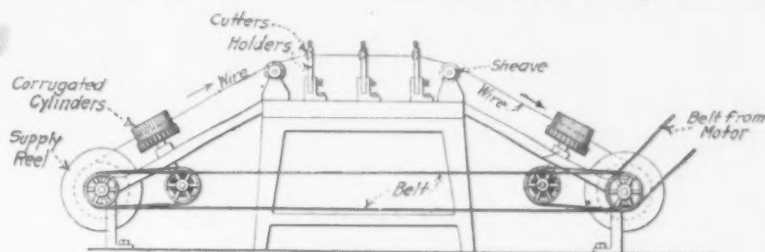
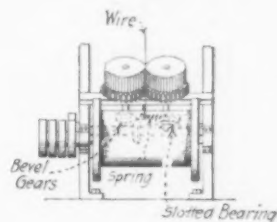


Fig. 2 (Lower Left) Shows the Apparatus from One End

Figs. 3, 4 and 5 Are Successive Cutting and Shaping Dies. It will be noted that 3 and 5 have teeth, while 4 is smooth



absorbent capillary material being mixed with it. Material used by the machines making the wool also varies. It includes molten slag, sheet metal and fine wire. The oldest specifications on file, involving patents of Oct. 13, 1885, an invention of Hugh Kennedy and John W. Higgs of Sharpsburg, Pa., called for the use of molten slag. Jets of steam or air, by this method, are blown through or against a small stream

acting upon the entire outside diameter of the wire material, and so arranged as to effect successive reductions in the diameter of the wire, each reduction producing a quantity of shavings of the desired fineness. The invention contemplates the final reduction of the wire material to such a small size that no more

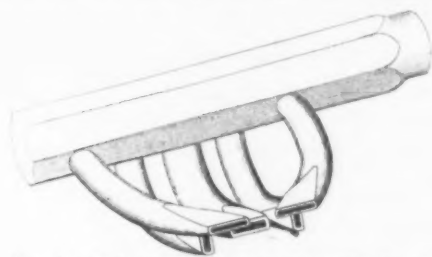


Fig. 7. The Group of Nozzles Used in the Kennedy and Higgs Method of 1885 to Make Metal Wool from Molten Slag

of molten slag, by which the latter is converted into fine vitrified fibers.

By a patent of Feb. 7, 1899, granted to Sigmund Feust, of New York, a machine makes the wool from sheet metal in the roll. A patent of Nov. 27, 1900, granted to Friedrich Wilhelm Bühne, who described himself as a German citizen, called for the use of thin metal wires from which chips are cut. Only the first named patent had molten slag as the raw material, while all the others used either shot, metal or fine wire. Improvements claimed provided the basis for the patents granted from time to time.

The latest on file is that of Francis A. Paton and Henry L. Koenig, of Fitchburg, Mass. Patented April

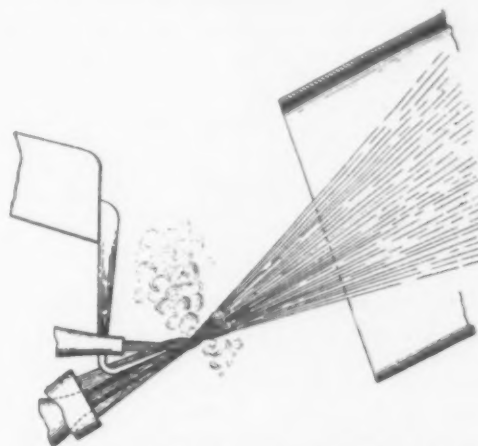


Fig. 6. Molten Slag Being Formed into Fine Vitrified Fibers by the Action of Steam or Air Jets—Kennedy and Higgs Method of 1885

shavings can be removed. The wire, when thus reduced in size, still retains its round cross section and is a salable by-product of the machine.

Fig. 1 is a side view of the machine, the parts being shown assembled and in operation. Fig. 2 is a view showing certain of the parts in end elevation. Figures 3, 4 and 5 illustrate various sizes and forms of cutting and shaping devices. The machine includes a number of wire reducing, cutting and shaping devices, which

are mounted upon a stand or support, each device being held in a bracket attached to the support. The brackets have slots or recesses for the reception of holders, which are detachably held in the slots by set screws.

Each holder has near the top a circular recess in one face, the recesses communicating with apertures opening on the other face of each holder for the free passage through of the material or wire. The recess in each holder is provided for the reception of a flat circular cutting or shaping device, of the form shown, for example, by Figs. 3, 4 and 5, respectively, this device filling and fitting snugly within the recess, and detachably held in it by means of a set screw which may engage a depression on the periphery of the device to hold it firmly and rigidly in position.

#### Elements of the Machine

At each end of the support, beyond the aligned cutting and shaping devices above described, is provided a guiding sheave for the wire in its passage to and from the cutting and shaping devices. As shown in Fig. 1, the wire is assumed to be traveling in the direction of the arrow, the wire being drawn from a supply reel at the left side of Fig. 1 and passing between two cylinders whose surfaces are corrugated longitudinally to obtain a bite on the wire. The supply reel is driven through a pulley and belt connection from a second reel, which has rotation imparted to it in either direction, as desired, from a belt connected to a source of power.

Adjacent to the second reel, on which the wire, traveling in the direction of the arrow is wound, are corrugated cylinders identical in construction and arrangement with those adjacent to the supply reel, the surfaces of the cylinders having cooperating longitudinal corrugations to obtain a bite on the wire in its passage between them. The cylinders of each pair are adapted to be rotated in unison through intermeshing spur gears, the teeth of the gears being somewhat elongated and preferably meshing loosely, so as to permit of a slight relative movement of the cylinders toward and from each other as hereafter described, while still maintaining the driving connection.

One cylinder of each pair has its shaft journaled in a fixed bearing on the frame, the shaft having a bevel gear connection in each case with a shaft which has a belt and pulley drive from the shaft of the adjacent reel. The shaft of the other cylinder of each pair is journaled in a bearing which is slidable, transversely, in ways on the framework, a spring operating at all times to draw the sliding bearing and the cylinder toward the other cylinder of the pair, thus causing the longitudinal corrugations of the cylinders to make contact with a wire passing between, regardless of the diameter of the wire.

#### Method of Operation

In the operation of the mechanism, the wire is threaded through the cutters and shapers carried by the several holders and passed between the two pairs of cooperating cylinders, and then is ready to be wound up on the receiving reel. For operation in this direction, as indicated by the arrow, Fig. 1, the left hand holder carries in its recess a shaping device such as that shown by Fig. 3, there being an aperture running through, with a series of small triangular or pointed teeth formed in its circumference, the diameter at the base of the teeth corresponding substantially with the diameter of the wire. The next holder to the right contains a cutting device, such as that shown in Fig. 4, having a plain aperture running through, corresponding in diameter substantially to the diameter at the apex of the teeth in Fig. 3. The third holder, if it is found desirable to make another reduction in the wire

in the same draft, has a shaping device in its recess such as that shown in Fig. 5, having a toothed aperture running through, with the diameter at the base of the teeth corresponding substantially to the diameter of the plain aperture in Fig. 4.

Drawing relatively soft steel wire through alternately toothed and plain shaping and cutting apertures, as described, results in the production of shavings of sufficient fineness to constitute, when assembled, the desired steel wool. The movement of the wire is effected, not only by the draft of the receiving reel but by the bite of the two pairs of cylinders, both pairs rotating in the proper direction to move the wire in the direction of arrow "A."

In the operation as described, the first shaping device, by the action of its teeth, removes a number of fine shavings from the surface of the wire, the latter emerging from the device with its surface having a number of raised portions formed by the scoring action of teeth. These raised portions are shaved off or removed by the passage of the wire through the smooth aperture of the second cutting device, the shavings from this, as well as from the previous operation, being collected, as they fall, in a suitable receptacle. If desired, the wire thus emerging with an unscored surface, may be wound up on the second reel without further reduction, or the third shaping device may be used to produce the same result on the reduced wire as the first device and, if practicable, other alternating shaping and cutting devices, gradually decreasing in diameter toward the end of the draft, may be employed.

After all the wire from the supply reel has been wound up on the receiving reel, the cutting and shaping devices in the several holders are removed, the holders being reversed to make their apertures face in the opposite direction and a new series of alternating shaping and cutting devices are inserted and held in the recesses of the holders by screws. These new wire reducing devices are substantially as those already shown, except that their alternating plain and toothed apertures are smaller in diameter. The wire on the right hand reel is then threaded through the apertures and between the adjusting cylinders, to be wound up on the left hand reel, the direction of the motor belt being reversed for this operation. Successive reductions of the wire in this fashion, each with the production of shavings of requisite fineness, are carried out until the diameter of the wire is so much reduced that no further reduction is practicable, and then the wire, removed from the reels, constitutes itself a salable product.

#### Steel Wool and Shavings

Steel wool consists of long steel fibers resembling curled hair. The fibers are of triangular cross section, and are graded according to fineness from coarse shavings to wool. Steel wool is used as an abrasive, and is a substitute for sandpaper and emery cloth or pumice stone, being regarded as superior to them for certain purposes. It is used in shipbuilding, in other building, in factories and in the household. No accurate figures of production are available. In 1917 the yearly consumption was estimated at between 1,000,000 and 1,500,000 lb., which (imports being cut off) virtually represented domestic production. Germany and Switzerland are also producers.

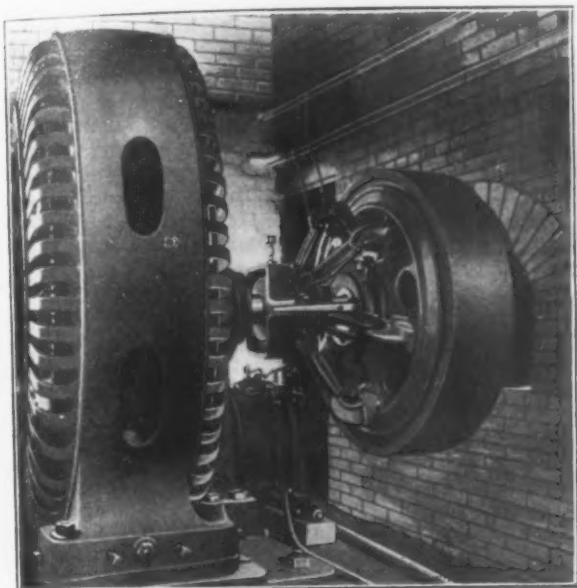
To help solve the country's problems of water supply and flood control, leaders of American engineering are urging Congress to establish a national hydraulic laboratory. Dean Mortimer E. Cooley, University of Michigan and president of the American Engineering Council, and John R. Freeman, president of the American Society of Civil Engineers, will advocate the laboratory proposal before a sub-committee of the Senate committee on commerce the latter part of this month.



### Improves Clutch for Heavy Work

The Universal Giant friction floating disk-type clutch of the T. B. Wood's Sons Co., Chambersburg, Pa., has been improved to withstand severe shocks, such as in picking up a machine or a battery of machines under full load after the prime mover has been brought up to speed.

The disks and plates of the clutch are of iron, and hard wood blocks are fitted in the former so that the two end grain surfaces come in contact with the latter. The improvement consists of the use of a new friction lining on the clutch disks, instead of the wood blocks used formerly. The new lining is known as "non-burn," and is said not to burn out and to wear con-



Heavy Duty Double Disk Clutch Between Motor and Main Line Shaft. The wearing qualities of the new friction lining on clutch disks is a feature

siderably longer than anything used heretofore for the purpose.

The clutch may be used in connection with standard pulleys, gears or rope sheaves, by boring them to fit the clutch sleeve. It may also be used to connect two shafts, a motor and a machine or an engine and the main line shaft, or bolted directly to machines.

The No. 36 double-disk type clutch is shown in the illustration direct connected between a synchronous motor and main line shaft. The motor is brought up to full speed of 200 r.p.m. and the clutch gradually thrown into engagement, picking up a starting load of 700 to 800 hp. without reducing the speed of the motor. It is claimed that in the case of this installation only one slight adjustment on the adjusting bolts has been necessary in 18 months.

Sizes ranging from  $5\frac{1}{2}$  to 480 hp. at 100 r.p.m. are available, the clutch having one, two or three friction disks as required.

### Effects of Strike in Ohio

SPRINGFIELD, Ohio, Sept. 4—Bauer Brothers Co. is feeling the effects of the general uncertain situation. Orders have been slowing up for the past week. The company has only about thirty days' supply of coal for its foundry. The main plant is operated with power from the power house of the Springfield Light, Heat & Power Co. The Bauer Brothers Co. started recently running full time. Mr. Bauer says the outlook is encouraging if the strikes are settled.

President P. E. Montanus, Springfield Machine Tool Co., reports that the railroad companies will be in the market for tools as soon as the strike is ended, but at present the machine tool business is quiet. The Springfield plant is working only a limited force of men.

There has been a slump in orders at the plant of the Superior Gas Engine Co. during the last 10 days.

This is probably due to the rail strike and the inability of companies to get material.

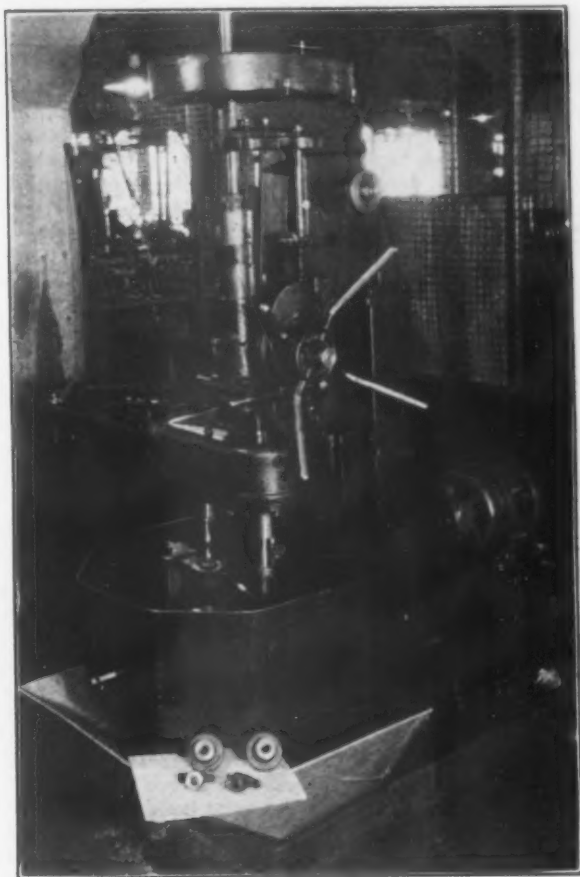
At the plant of James Leffel & Co. orders are coming in for water power equipment from various parts of the country.

### Drill Arranged for High Production

The illustration shows a 20-in. box-column drilling machine of the Rockford Drilling Machine Co., Rockford, Ill., arranged to rough drill, rough taper ream and face and finish taper ream the yoke and flange members of a new oil-lubricated universal joint. A production of 250 of these pieces in a 10-hr. day is said to be obtained by the Mechanics Machine Co., Rockford, Ill.

In this arrangement a four-station rotary table, with the index plunger worked by a foot treadle, is applied to the regular table. The rotary table is indexed by hand after the locating plunger is pulled. Four two-jaw chucks with formed jaws to suit the work are provided for the table, an extended wrench being used for tightening the chuck screws, which takes place outside of the chip guard. The chucks are under the work spindles, three of them being in operation while the fourth is being loaded. A finished piece is removed at each index.

A three-spindle drive head equipped with a V-gibbed slide is mounted on the table ways as shown. The machine spindle serves to drive and feed this head, which is fully counterweighted. A positive



Drilling Machine Equipped with Four-Station Rotary Table and Three-Spindle Drive Head, Mounted as Shown

micrometer adjustment stop on the quill is provided for a depth gage. An adjustment for height and diameter of drill, drill-bushings support is provided under the left-hand spindle.

The machine is regularly rated as having a capacity to drive a 2-in. high-speed drill in solid steel. The drive is direct by silent chain from an electric motor through interchangeable pick-off gears for speed changes. Four feed changes are regularly provided in a simple feed box. The diameter of the rough-drilled hole in the yoke and flange members shown is  $\frac{3}{4}$  in. and the length  $2\frac{1}{2}$  in.

## ACTIVITY IN METAL TRADES

### Worcester, Mass., Operations Typical of Betterment in New England

WORCESTER, Mass., Sept. 2.—Metal and kindred industries of Worcester and of Central Massachusetts generally have been working back to normal ever since the beginning of the year, and in some lines have reached that point. The wire mills are running full, the only limit being the supply of labor. The manufacturers of screw machine products are driving their machinery to the limit. The pressed and stamped metal plants are fairly busy, but there is a question as to raw material supply. The Osgood-Bradley Car Co. is pretty well filled up, a recent \$2,000,000 order being for steel passenger cars for the Boston & Maine Railroad. The car shops at the Summit have been employing 1500 men and the number is being increased.

The screw business, as represented here by the large works of the Reed & Prince Mfg. Co., operating on a 60 per cent basis, is neither good nor bad, but is much better than at any time since the slump. The textile machinery industry as represented in Worcester was hit less than most in that line.

#### Machine Tools an Exception

The one exception to the general report is the machine tool industry, especially firms building the older standard types such as lathes, planers, milling machines, drilling machines and shapers. Concerns such as the Reed-Prentice Co. and the Woodward & Powell Planer Co. report a certain degree of improvement, but by no means a large one. The grinding machine situation is markedly better, however.

The sum total of improvement in the machinery industry, according to a past president of the National Machine Tool Builders' Association, is represented by the average percentage gathered by the association from its members. In 1920 these firms, representing a large part of the industry, furnished the association with their average monthly sales in dollars for the first quarter of the year. Ever since that time, the same firms have submitted monthly reports, in percentage of that monthly average. In 1921 the returns indicated only 8 per cent of the basic month, in a few cases running up to ten per cent. Since the beginning of 1922 there has been an increase, until July gave twenty-five per cent. That is to say, the machine tool business of the United States as represented by sales of new equipment was one quarter of what it was early in 1920. The correction should be made, however, that reduced prices, probably averaging upward of twenty-five per cent, have made a larger volume of actual business necessary to secure a given total in dollars. Consequently, at the 1920 prices the business for July would be considerably greater than the twenty-five per cent.

The machine tool shops of this section are operating with very small forces indeed, as a rule, because when the depression fell upon them they had large inventories. A planer builder, for example, reports that to fill an order for any standard size machine in his line he has only to order in a bed and table, the rest of the machine being ready at hand in stock, ready for assembling.

The Norton Co., manufacturer of abrasive wheels and grinding machines, is increasing production rapidly in both wheel and machine divisions. The big plant six, which was added during the war and operated up to the time of the depression, has been started up again, which, together with normal production in other units of the wheel division, has meant a large increase in working force, operating on full schedule. The machinery division was even flatter than the rest of the works until early this year, when orders began to come in, and now operations have so increased as to mean the employment of 400 hands in the machine shops. The orders for machinery not only include the automobile industry, but industrial activities generally. Preparations are now making to manufacture grinding machines for stock. The company had a considerable inventory to carry over, but this has largely disap-

peared, and since the dull times set in several new types have been added to the line and will now figure in stock production.

The manufacturers of abrasive wheels have felt in a very serious way the great stocks of wheels in the factories of their customers, notably in the automobile industry. These cared for all requirements, with occasional exceptions, for months after manufacturing resumed an active form. Now, the wheel makers have learned, the accumulation of wheels is down close to normal proportions and buying has increased.

The Heald Machine Co. is moderately busy. This company bridged the dull times by specializing on a line of garage machines, but the demand is now including standard lines.

The Graton & Knight Mfg. Co. finds a material demand for export figuring in its increase in leather belting business. But exports to Europe are not in large volume, South America and the Far East figuring more importantly.

The Baldwin Chain & Mfg. Co. specializes on chain drives for a diversity of uses which are increasing constantly. At present some 400 names are on the payroll, a large increase since the year began. Some of the new demand is from the tractor trade, but the larger part is from machinery builders producing a great variety of equipment, chiefly automatic.

#### Screw Machine Operators Scarce

The screw machine situation is complicated by a scarcity of operators. The Parker & Harper Co. is running full force overtime; the Liberty Screw Co. is operating day and night, and the Walden-Worcester, Inc., which does a large general business in screw machine products, is operating that department twenty-four hours a day. Incidentally this company, now operating under the management of J. Verner Critchley, in August had a record month in the manufacture of its wrenches.

Employers are beginning to bid for screw machine operators. The Worcester rate is sixty and sixty-five cents an hour. Local managements report that agents of Connecticut factories have offered seventy-five cents an hour and upward, and the result has been a mild but annoying exodus.

#### Wire Works Well Employed

The wire industry of Worcester is prosperous. The coal and railroad strikes have had little effect up to the present time, as the necessary fuel and raw materials were on hand in quantity when the trouble began. The Worcester works of the American Steel & Wire Co. buy large quantities of power from the New England Power Co., which has exceptional reserve waters on the Connecticut River and its tributaries, this wet season, and the Wickwire-Spencer Steel Corporation depends wholly upon the Worcester Electric Light Co. which has fuel to last for months.

The one great trouble is labor. The American Steel & Wire Co. has been handicapped in this respect, but the announced advance in wages should help to some extent, and with the coming of cold weather large numbers of men will be released from outdoor employment, which has been much greater than usual this year.

In the effort to secure workers, agents have met incoming steamers in Boston. But they found immigrants of the brawn and muscle type in very small percentage, in sharp contrast to former experience.

The Worcester Wire Works, Inc., one of the young wire concerns, which makes high carbon steel wires, has been busy for months, its product going chiefly to the automobile factories, and to the wire rope manufacturers, particularly of the Pacific Coast, to be fashioned into rope for logging and mining operations. There is a stiffening of prices, due to the growing cost of raw material.

Improvement in the wire specialty business is shown in the experience of Sleeper & Hartley, Inc., manufacturers of special wire forming machinery. Not many months ago the large shop was practically idle. To-day it is operating on nearly a normal basis, with orders for many different customers. In this the



management shares the experience of the many special machinery builders of New England.

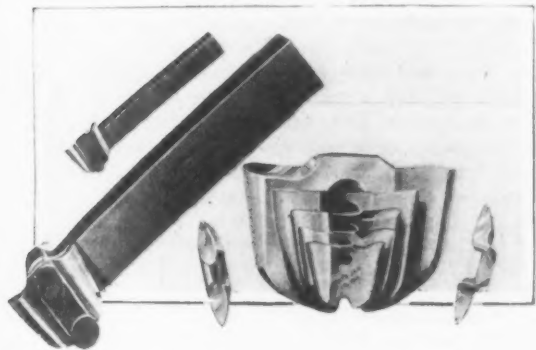
The pressed and stamped metal companies are beginning to worry over their raw material supply, for the steel mills are not shipping in required quantities. The industry in Worcester is otherwise very well off. The Worcester Pressed Steel Co., largest of the local concerns, is running its plant as full as in the high tide of production, but, with the exception of some of

the mills of the cold rolled strip department, there are no night shifts. Most of the orders are from the New England territory, both in metal products and in strip. Orders average small, but there are many of them. The Boston Pressed Metal Co. is equally busy, its trade being divided between the East and the Middle West. The Worcester Stamped Metal Co. and other concerns in this line of business are operating at a good rate.

### Toolholder and Interchangeable Cutters

Toolholders and cutters, constructed as shown in the illustration, are being offered by the Morris Tool Co., 7 Beekman Street, New York. They are for use on lathes, planers, shapers, boring mills and slotters, and are intended to permit the most economical use of high-speed steel, furnishing, it is claimed, unusually rigid support for the cutter point and maximum heat transference.

The cutter blade is double, as shown, either cutting edge being used until worn out, without affecting the other. They are secured to the chrome-nickel steel holder by two heat treated steel bolts. The holder is made with straight and offset shanks, and being reversible, one offset shank provides for both right-hand and left-hand positions. The cutters are interchangeable for either position and may be used until practi-



Toolholder and Interchangeable Cutters. The holder is made with straight and offset shanks. Unusually rigid support for cutter point is emphasized.

cally ground down to nothing at the cutting point. A unique feature is the vertical offset of the cutter-holding bolts with respect to the holder center line, which provides for adjusting the point to the proper height as it wears down. The clamp system is pointed out as being not only simple and efficient, but very well fitted to hold the cutters without breaking them.

A complete working set of tools consists of one each straight, right-offset and left-offset toolholders, three left-hand and three right-hand roughing tools; two 60-deg. U. S. S. or V-thread tools; two cut-off tools, and one right-hand and one left-hand side tools. There are 10 sizes, from the No. 3 with a  $\frac{1}{2} \times \frac{3}{4}$  by  $5\frac{1}{4}$ -in. holder, blade  $\frac{1}{4}$  in. thick, to the No. 17 with  $2\frac{1}{2}$  by 3 by 24-in. holder, blade  $1\frac{1}{8}$  in. thick. Complete sets are made up to size No. 11.

It is claimed that in a test the No. 11 roughing tool, with standard tool blade and 7/16 in. depth of cut with  $\frac{1}{8}$ -in. feed, traversed 1 mile, 4270 ft.,  $5\frac{1}{2}$  in. in three 21-in. torpedo flasks without re-grinding.

### Using Mexican Coke Exclusively

The blast furnace of the Compañía Fundidora de Fierro y Acero de Monterrey, S. A., (Monterrey Iron & Steel Co.) Monterrey, N. L., Mexico, which was blown in on July 24, is being operated entirely on Mexican coke. This is the first successful operation with the exclusive use of domestic coke. The furnace products are basic, foundry and high manganese irons.

### To Make Knobbled Charcoal Iron Sheets and Roofing Ternes

The Charcoal Iron Products Co., organized a few months ago to take over the plant of the Griffiths Charcoal Iron Mills, Wylie Avenue, Washington, Pa., has practically completed the rehabilitation of the old plant and expects to start operations about Oct. 1.

Eight knobbling furnaces of an improved type have been installed; also a new heating furnace while an old one has been rebuilt. Both of the heating furnaces are served by waste heat boilers. The bar mill, the steam-hammer and the rolling mills have been renewed and the company also is changing the pickling machine so that it can be used for either large or small pieces. Formerly the pickling machine could be used only for 20-in. x 28-in. sheets. Furnaces for serving the two hot mills are new installations. The sheet mill building is served with a new type of monorail hoist which runs out into the loading yard over the tracks of the Pennsylvania Railroad, a branch of which runs alongside the plant.

The company will make knobbled charcoal iron sheets and heavy coated roofing ternes and later will go in for the manufactured products, as it has the facilities for making conductor pipe and eave troughs and also corrugating and roll roofing machines.

John Slater is president, George N. Wolf, vice-president; Ray G. Zelt, treasurer; E. T. McNulty, secretary and general manager, and H. M. Wade, superintendent. Mr. McNulty formerly was superintendent of the Yorkville, Ohio, works of the Wheeling Steel Corporation and Mr. Wade also was connected with that plant before making his present affiliation.

### American Iron and Steel Exports to Brazil

WASHINGTON, Sept. 5.—Prospects are good for the sale of American iron and steel in Brazil, but orders are being held up on account of the uncertainty of delivery due to the coal and rail strikes, according to a cable dispatch received by the Department of Commerce from Commercial Attache Schurz, Rio de Janeiro. The State of Rio Grande do Sul will receive bids for 300 kilometers of 65-lb. rails on Sept. 10, and for 90 kilometers on Sept. 23. The Great Western of Brazil Railroad will also order about 6000 tons of rails in September.

From July 21 to Aug. 20 imports at Rio de Janeiro and Santos included the following: Wire, over 2098 tons from the United States; steel bars, 386 tons from the United States, and heavy shipments from England; sheets, 1382 tons from the United States and considerable shipments from England; miscellaneous iron and steel products, over 1000 tons from the United States and considerable shipments from England, Germany and Belgium; tin plate, 510 tons from the United States.

A cable from Cuba states that August produced no marked changes in the iron and steel market there. Practically no business of importance is being transacted in sugar mill machinery owing to the policy of economy being followed.

The principal iron and steel works of Mexico, located in the city of Monterrey, a report states, anticipates new workings in its iron deposits in the State of Durango, due to the prospective demand for manufactured products by the mining industry.

### Tablet to Commemorate First Production of Bessemer Steel in America

Probably one of the most interesting events to occur during the international steel exposition and convention of the American Society for Steel Treating at Detroit, Oct. 2 to 7, will be the unveiling of a bronze tablet dedicated to the memory of those pioneers of the steel industry who in 1864, at Wyandotte, Mich., erected the first Bessemer steel converter used commercially for the manufacture of Bessemer steel in America. This tablet is to be erected by the Detroit chapter of the American Society for Steel Treating through its executive committee and Messrs. Atkinson, Hamilton and McCloud, acting as a special committee.

The site of the Wyandotte Iron Works where Kelly's first tilting Bessemer steel converter was erected is the present location of the Wyandotte public library, and permission has been secured from the library board for the placing of this tablet on the front of the building. It will be 24 x 36 in. and at the head of it will be a bas relief of the original converter.

The unveiling exercises will probably be held on Thursday afternoon, Oct. 5, and the Governor of Michigan has indicated his intentions of being present, and other speakers of prominence are being invited.

The erection of this tablet is the first public recognition of the achievements of William Kelly who made his first Bessemer steel in 1847 and finally patented his process in 1856, although it was eight years later before the Wyandotte Iron Works produced the first Bessemer steel for commercial purposes. Shortly before Mr. Kelly's death, he said to his children, "The day will come when some one will do me justice." It remained for the Detroit chapter of the American Society for Steel Treating to commemorate the achievement of the early pioneers in the development of the process that caused the United States to become the supreme steel-making nation in the world.

### Dinner to Harold L. Stevens

Some twenty-odd Boston iron and steel representatives gave an informal dinner Thursday evening, Aug. 31, at the Algonquin Club, that city, in honor of Harold L. Stevens, who recently resigned as New England sales manager, Lackawanna Steel Co., to become general sales manager Central Iron & Steel Co., Harrisburg, Pa. Among those present were: W. S. Locke, Carnegie Steel Co.; C. N. Fitts and W. B. Douglas, New England Structural Co.; H. O. Russ; R. B. Sanderson, E. P. Sanderson Co.; C. A. Beale, Alan Wood Iron & Steel Co.; J. G. Andrews and M. F. Brown, Boston Bridge Works; A. C. Harvey, A. C. Harvey & Co.; W. H. Hayes and C. H. Carter, Midvale Steel & Ordnance Co.; H. G. Porch, Lukens Steel Co.; H. G. Austin, Central Iron & Steel Co.; S. Wiley Wakeman, Fore River Works, Bethlehem Shipbuilding Corporation, Ltd.; George Dennyven; Frank Sargent, Chicago Pneumatic Tool Co.; R. B. Wallace and Frank Brigham, Bethlehem Steel Co.; and W. E. Clark.

Mr. Austin served as toastmaster. Mr. Hayes spoke in behalf of those present and those unable to attend, wishing Mr. Stevens success in the new field. Mr. Fitts and Mr. Carter were in charge of arrangements.

### The Basset Process

Speaking at the annual meeting of the Ougrée-Marihay Co., Belgium, Gustave Trassenster, chairman, mentioned the Basset process, which, he said, had already yielded satisfactory results, according to the *London Iron and Coal Trades Review*. The production of a high temperature in a reducing atmosphere, which is the basis of this new process, represented indisputable progress. The intentions of the directors had been to follow very closely the trials which were being continued, and to secure for the company the exclusive patent rights for Belgium, Luxemburg, and a portion of France. Under these circumstances the company had considered it advisable to participate in the French

company to the extent of 1,000,000 f. Among other results obtained with the new process, the speaker said that it had been possible to abstract the metal from the ore, leaving only 1 per cent of iron in the slag. Certainly the lining of the furnace was not yet what it ought to be.

### Henry Marion Howe Medal Founded by Steel Treating

The Board of Directors of the American Society for Steel Treating, with the approval of Mrs. Howe, has set aside a fund from the treasury of the Society to be known as the Henry Marion Howe Fund, the proceeds from which will apply on an annual medal to be known as the Henry Marion Howe Medal.

The medal will be of gold and will be presented to the author of the paper considered of highest merit on any subject within the field covered by the Society.

The establishment of this medal is as a tribute to the exceptional contributions made by the late Doctor Howe to the science of metallurgy, and in this way the society will commemorate annually the career of its distinguished honorary member.

The rules governing the award of the medal will be announced during the international steel exposition and convention of the American Society for Steel Treating at Detroit, Oct. 2 to 7.

### Meeting Committee A-1 of American Society for Testing Materials

F. M. Waring of the Pennsylvania Railroad Co., Altoona, Pa., chairman of committee A-1 on steel of the American Society for Testing Materials, has issued a call for a meeting of his full committee to be held at Detroit, Oct. 5 and 6, during the international steel exposition and convention of the American Society for Steel Treating. The following meetings are scheduled for October 5: 10:00 a. m., sub-committee II; 11:00 a. m., sub-committee XIV; 12:00 noon, sub-committee VIII; 2:00 p. m., sub-committee XIX.

On Friday Oct. 6: 10:00 a. m., advisory committee of committee A-1; 11:00 a. m., important session for purpose of effecting an organization for coming year besides discussion of the work before the committees and the hearing of committee reports.

All of the meetings will be held at Hotel Statler, and practically all of the 134 members are expected to be present.

### Meeting of Drop Forge Supply Association

H. N. Taylor, president, N. & G. Taylor Co., and president for the past eight years of the Drop Forge Supply Association, has made arrangements for the holding of a meeting of the members of his association during the international steel exposition and conventions of the American Society for Steel Treating and the American Drop Forging Institute in Detroit. The meeting will be held at 12:30 on Tuesday, Oct. 3, in the General Motors Building.

### Engineers Elected to Eye-Sight Council

Election of several engineers and educators to the board of councillors of the Eye-Sight Conservation Council of America is announced from the headquarters of the Council in New York. Engineers chosen include Prof. Joseph E. Roe, head of the department of industrial engineering, New York University, and Dr. F. C. Caldwell, professor of electrical engineering, Ohio State University.

Professor Roe is a member of the executive board of the American Engineering Council of the Federated American Engineering Societies and president of the Society of Industrial Engineers. Professor Caldwell is chairman of the committee on education of the Illuminating Engineering Society. Further enlistment of the co-operation of the engineering profession is being planned by the Council.



# Trade Commission Objects to Merger

## Complaint Filed Against Republic, Midvale and Inland Steel Companies Conflicts with Position of Department of Justice—Plans for Combining Will Proceed

BY L. W. MOFFETT

WASHINGTON, Sept. 5.—Issuance last Thursday by the Federal Trade Commission of a complaint against the Midvale Steel & Ordnance Co., the Republic Iron & Steel Co., and the Inland Steel Co., charging that the proposed merger of these interests is an unfair method of competition in violation of Section 5 of the Federal Trade Commission act, was expected, but at the same time it created an anomalous position as between the commission and the Department of Justice. The department, in its report to the Senate on July 21, gave its emphatic approval to the proposed mergers of the Bethlehem Steel Co. and the Lackawanna Steel Co., as well as of the three companies against which the commission has just issued a complaint, after it had taken similar action with regard to the Bethlehem and Lackawanna companies. While it is true that the report of Attorney General Daugherty was confined from a point of jurisdiction to the Sherman, Clayton and Webb-Pomerene acts, and the Federal Trade Commission is proceeding under the Federal Trade Commission act, the Department of Justice, in the course of commenting on the proposed merger of the Midvale, Republic and Inland companies (to be known as the North American Steel Corporation) said that there is but one underlying purpose in the combination; that is, to enable the new company to compete with the United States Steel Corporation. It was added: "Instead, therefore, of being in restraint of trade the new combination will be in furtherance of trade." A similarly clean bill was given by the Department to the Bethlehem-Lackawanna merger, and Samuel Untermyer, in one of his attacks on the Steel Corporation, said he could see no violation of law in the mergers.

But the Federal Trade Commission, with a sharp dissent from its newest member, Judge Vernon W. Van Fleet, only followed its own precedent and did the expected in issuing the complaint. Chairman Gaskill, in explaining his attitude in a somewhat elaborate legalistic disquisition, and asserting the views are his own and not necessarily those of the commission, seeks to justify the complaint on a matter of public policy. Judge Van Fleet directly challenges this view and supports that of the Department of Justice, with which Mr. Van Fleet was formerly associated, and expresses the opinion that the merger is in the public interest. Lawyers who have studied the documents of Chairman Gaskill and Commissioner Van Fleet, both of whom are admittedly able attorneys, have expressed the view that the latter in this case expresses much the sounder law.

The statement of Commissioner Van Fleet, tart in its tone at different points, speaking of the United States Steel Corporation as the chief competitor of the respondents, says the former controls about 45 per cent of the steel business of the country, as against a possible 7½ per cent of the Midvale, Republic and Inland companies. He adds: "We seek to prevent this small combined competition. We strain at the gnat and swallow the camel." This observation is made after reference to the fact that the United States Supreme Court held that the Steel Corporation did not violate the Sherman act.

In view of the sharp difference of opinion between the majority members of the commission and the De-

partment of Justice, it is interesting to consider the possible course of the proceedings. Should they reach the Supreme Court, jurisdiction before that tribunal on the part of the Government would rest with the Department of Justice. The Solicitor General of the department, acting under the Attorney General, can assign any attorneys he sees fit. While it is conceivable that he might defer to the Trade Commission and select counsel from that body, he could select counsel from the department, which has approved of the proposed mergers so far as the Sherman, Clayton and Webb-Pomerene acts are concerned. Going further, the department, taking a view directly opposite to that of the commission, said they would be in the public interest, or favor "public policy."

The commission announced that the Midvale, Republic and Inland companies are given 30 days within which to file answers. In the formal complaint it is stated that Oct. 20 has been fixed as the date when a hearing will be had on the complaint so that the respondents may "show cause why an order should not be entered by said commission requiring you to cease and desist from the violation of the law charged in this complaint."

### Merger Plans Will Proceed

Thomas L. Chadbourne, of the law firm of Chadbourne, Babbitt & Wallace, who was one of the chief figures in the negotiations that brought the steel companies into agreement last spring, makes the following statement:

"Inasmuch as the Attorney General has reported favorably on the proposed merger, and all of the eminent counsel whose opinion has been sought have approved the project as entirely legal, the three interested concerns have authorized me to announce that they intend to proceed with the necessary steps to make the project effective."

In their decision the three companies are following the precedent set by the Bethlehem Steel Corporation and the Lackawanna Steel Co., which after receiving a clean bill of health from the Attorney General are proceeding to consummate the merger of those two companies.

### Commissioner Van Fleet's Reasons

Commissioner Van Fleet in voting against the issue of the complaint, filed the following memorandum setting out the reasons for his dissent.

*In the matter of Midvale Steel & Ordnance Co., Republic Iron & Steel Co., and Inland Steel Co.*

In this case the salient facts are that one corporation competitor of the respondents controls about 45 per cent of the steel business of the country; that the proposed merger if consummated would control about 7½ per cent of such business and the other so-called independents would control about 47½ per cent of such business; that the proposed merger is to be accomplished by the acquisition of the physical assets of the constituent corporations and not by the acquisition of

their shares or share capital. The plants of respondents are widely separated, being in Pennsylvania, Ohio and Indiana. It is true that there is some competition between them as there is between them and their chief competitor and between them and all other independents. It is, of course, true that the proposed merger would do away with competition between the merging companies. This must be the case in all mergers of competing companies. It is plain under the decisions of the Supreme Court of the United States, which decisions have now become so well known that it is unnecessary to cite them, that it is not every lessening of competition that is against the Sherman law, but only that which is in unreasonable restraint of trade and in the case of the United States vs. the United States Steel Corporation, a combination controlling a very much larger proportion of the steel business, was held not to be in unreasonable restraint of trade nor a monopoly. If this is so—and it is the law of the land as long as such decision stands—it cannot well be argued that the proposed merger is against such law. Indeed, I do not understand that it is contended that the proposed merger is within the inhibition of the Sherman law as interpreted by the Supreme Court. My personal idea is that the decisions of that court are of binding effect upon us. The Clayton act provides that "no corporation engaged in commerce shall acquire, directly or indirectly, the whole or any part of the stock or other share capital of another corporation engaged also in commerce, where the effect of such acquisition may be to substantially lessen competition between the corporation whose stock is so acquired and the corporation making the acquisition, or to restrain such commerce in any section or community, or tend to create a monopoly of any line of commerce."

#### Far-Reaching Act

It will be seen that this act is much more far-reaching than the Sherman act in cases coming within its provisions for the reason that it prohibits substantial lessening of competition between the corporations themselves, and if its language were broad enough to include every combination however effected, it would prohibit all combinations of competing businesses.

In such case and under such construction, the Sherman act would become obsolete. There would be no need ever to resort to it because always the combination, though it did not contravene its provisions, would come within the provisions of the Clayton act. So the Clayton act specifically limits its operation to a case where the combination is effected by the acquisition of shares or share capital, thus under the well known maxim of statutory construction "expressio unius," etc., excluding its application to any other state of facts. Thus it seems plain that the proposed merger does not come within the inhibition of either the Sherman act or the Clayton act. The Attorney General in an opinion, recently rendered to the Senate of the United States, in a response to a resolution, has held that the proposed combination is not in violation of either of these acts. While such opinion is not of binding effect on this commission, I think it is sound and entitled to great weight. But it is argued that the proposed merger comes within the Federal Trade Commission act as a method of unfair competition because said act prohibits all methods which are against public policy and it is argued that the proposed merger is against public policy as declared in the Clayton act. I concede that all methods of competition which are against public policy are to be deemed unfair and within the act.

#### Lessening Competition

It is contended because the Clayton act prohibits mergers which substantially lessen competition between the merging companies, under certain conditions, that this is a declaration of public policy to prevent such mergers under all conditions. In other words, we are to reach down into the Clayton act and take a part therefrom and supplementing it with the Federal Trade Commission act, make that unlawful which is not de-

clared to be unlawful by the act itself. It is contended that such a merger is against public policy. Who says so? Congress did not say so. It said that such merger should be unlawful only when accomplished by the acquisition of shares or share capital. If its intent had been to make it against public policy to combine in any other manner, it would have said so. It might have used the words "capital assets" or "by any means," or "in any other manner," but it did not.

It seems to remain for the Federal Trade Commission to do this, thus making the inhibition of the act apply to a state of facts not enacted by Congress. Thus adding to the law provisions Congress did not make. Thus making that unlawful Congress did not make unlawful. Thus in plain terms judicially legislating. There was a well defined purpose in the Clayton act, namely, to prevent secret combinations by the acquisition of stock and a reference to the debate over the bill clearly demonstrates this and clearly shows it did not have in mind the prohibition of the merging of competing companies under all circumstances. I do not think any support for this theory can be obtained from the Beechnut case. The argument is that in that case, although there was no violation of the Sherman act in terms because no contract in restraint of trade, yet the court held the acts unlawful which were in violation of the terms of that act as against public policy. But the acts inhibited by the Sherman act are and for hundreds of years have been unlawful at common law. Acts in unreasonable restraint of trade and tending to create monopoly have always been against the common law and consequently against public policy, so that this public policy exists although the terms of the Sherman act are not violated.

#### A Different Case

But the case of the Clayton act is different. It has never been per se unlawful, nor against the common law for two or more competing businesses to combine, thus substantially lessening competition between them. In and of itself without more such a combination has always been legal. It is only when it goes further and results in unreasonable restraint of trade or tends to create a monopoly that it becomes unlawful unless it also comes within all the terms of the Clayton act. The mere fact of the elimination of competition between merging corporations never having heretofore been illegal, it cannot be made illegal by the mere fiat of the Federal Trade Commission. As said by the Supreme Court in the Gratz case: "The words unfair methods of competition . . . are clearly inapplicable to practices never heretofore regarded as opposed to good morals because characterized by deception, bad faith, fraud or oppression, or as against public policy because of their dangerous tendency unduly to hinder competition or create monopoly."

The usual method of procedure has been somewhat varied in this case in that a full hearing was given prior to the issuance of a complaint.

#### Would Prevent Economies

What I deem to be a full disclosure of the facts has been made with a thorough presentation of the law. It appears that the chief competitor of the respondents is the United States Steel Corporation controlling about 45 per cent of the steel business of the country as against a possible 7½ per cent of the combined respondents. This great corporation is reputed to be probably the most efficiently managed business concern in the world. It has vast power, albeit wisely administered.

It can produce a ton of steel at from \$3 to \$5 a ton cheaper than its competitors. It would seem that the so-called independents exist by its wise tolerance. It evidently dominates the trade. Yet in such a condition of affairs, we seek to prevent this comparatively insignificant combination, whose object plainly is to effect economies. That such a combination could if it wished restrain trade or create a monopoly is out of the question. The one does exist. We seek to prevent this



small combined competition. We strain at the gnat and swallow the camel.

For the foregoing reasons, I dissent from the action taken by the majority in this case.

VERNON W. VAN FLEET,  
Commissioner.

### Commissioner Gaskill's Statement

Commissioner Gaskill filed the following memorandum expressing the reasons underlying his vote to issue the complaint:

*In the matter of Midvale Steel & Ordnance Co., Republic Iron & Steel Co., and Inland Steel Co.*

The Federal Trade Commission, having reason to believe that the pending proceedings of Midvale Steel & Ordnance Co., Republic Iron & Steel Co., and Inland Steel Co., looking to a combination or merger, are in violation of law, and that action by the commission in respect thereof is in the public interest, has issued a complaint against these three companies stating its charges in that regard. In ordinary circumstances, I should consider that an expression of the reasons underlying my vote for such action would be premature lest it be mistakenly accepted as a binding declaration controlling my final judgment. Such a statement more properly accompanies the commission's decision at the conclusion of a case.

But the circumstances are peculiar. The case, like that of the complaint against the Bethlehem-Lackawanna combination, is of paramount importance to the parties involved and to the public. The Attorney General of the United States, in a careful and learned opinion, has advised the Senate of the United States that the companies involved are not acting in violation of the Sherman law. With due deference to the jurisdiction of the Federal Trade Commission, the Attorney General refrains from any expression of opinion as to the application of the Federal Trade Commission act. Nevertheless, the distinction is not clear to the general public, nor yet to the whole of the legal fraternity.

### Views Differ Widely

The views which I entertain as to the state of the law applicable in this instance apparently differ widely from those which are held by counsel for the several respondents since neither their briefs which were submitted to the commission nor their arguments in conference, were directed along these lines. It seems proper therefore that I should state my view of the applicable law in order that counsel may be fully informed and may direct the case upon the complaint in such manner that the commission will receive the full benefit of their consideration of the possible aspect of the law, which is now suggested.

The Sherman law is both a declaration that restraint of trade and monopoly are contrary to public policy and a prohibition of the use of certain specified methods of accomplishing either of the unlawful objects. This definition of unlawful methods is a limitation upon the scope of that law. And so in a great body of decisions upon the Sherman law, the judicial function is concerned with the question of method rather than object, to determine whether the method under examination is within the limitations created by the legislative definitions.

Under the Federal Trade Commission act, on the contrary, the question is solely related to the nature or character of the object. If that is unlawful, it matters not what the method used to accomplish it may be. This is the great and controlling distinction between the two laws.

### The Federal Trade Act

Section 5 of the Federal Trade Commission act reads in its significant part as follows: "Unfair methods of competition in commerce are hereby declared unlawful . . . The commission is hereby empowered and directed to prevent persons, partnerships, or corporations, except banks, and common carriers, subject to the acts to regulate commerce, from using unfair methods of competi-

tion." In this all inclusive declaration is condemnation of all and every method of establishing unfair competition. There is no limitation created by legislative definition as there is in the Sherman law. Congress declined the attempt to define unfair competition, or to specify the methods which are to be prohibited. It placed this duty of interpretive definition upon the commission subject to review by the courts. The commission as an administrative body must determine in the first instance whether a given action is an unfair method of competition and upon review the court determines not whether it would have reached the same conclusion had it been sitting in place of the commission, but whether the commission was permitted under the law to reach the conclusion which it stated.

There was no need for any other form of legislation. As Mr. Justice Brandeis stated in his dissenting opinion in the Gratz case, "What Section 5 declares unlawful is not unfair competition. That had been unlawful before. What that section made unlawful were 'unfair methods of competition'; that is, the method or means by which an unlawful end might be accomplished."

What is the unlawful end, object, under the Federal Trade Commission act which may not be accomplished by any method?

### Unfair Methods Defined

Explaining the phrase "unfair methods of competition," Mr. Justice McReynolds speaking for the majority of the Supreme Court in the Gratz case, said:

"The words 'unfair methods of competition' are not defined by the statute and their exact meaning is in dispute. . . . They are clearly inapplicable to practices never heretofore regarded as opposed to good morals because characterized by deception, bad faith, fraud or oppression, or as against public policy because of their dangerous tendency unduly to hinder competition or create monopoly."

If we set aside as not bearing upon the question now under consideration, that part of this statement which refers to practices contrary to good morals, and cancel the double negatives so as to state the proposition in the affirmative, the rule laid down by the court for determining the nature or quality of the unlawful object prohibited by the Federal Trade Commission act is:

"The words 'unfair methods of competition' are applicable to practices heretofore regarded as against public policy because of their dangerous tendency unduly to hinder competition or create monopoly."

The word "heretofore" cannot be construed to limit the application of the act to specific prior definitions either in law or judicial decisions. It is merely recognition of the fact that public morals and public policy have heretofore been regarded as the standards of fair competition. To apply it literally and strictly is to make section 5 merely a confirmation of a series of judicial precedents. The act must include all methods which fall within the boundaries of public morals and public policy. And manifestly, it must at least be broad enough to include subsequent legislative declarations of public policy.

Section 5, in so far as it is now applicable, may then be stated thus, "Any method which is against public policy because of its dangerous tendency unduly to hinder competition, is unlawful."

### Sherman Law Declaratory

The Sherman law is declaratory of public policy, coming within even the most limited view of the meaning of the word "heretofore." Therefore, whatever method is used to accomplish an object contrary to the public policy as declared in that act, may be "prevented" under the Federal Trade Commission act. Not as a violation of the Sherman law and for that reason an unfair method of competition, but being in contravention of public policy as declared in the Sherman law, it is an unfair method of competition under the Federal Trade Commission act.

In the Beechnut case, the commission avowedly put its complaint outside the Sherman act by stipulating

that there was no contract present in that case. The respondent practically argued that unless the Sherman law applied, the order of the commission should be reversed. The court said, "The Sherman act is not involved here except in so far as it shows a declaration of public policy to be considered in determining what are unfair methods of competition, which the Federal Trade Commission is empowered to condemn and suppress."

The Clayton law stands with reference to the Federal Trade Commission act in precisely the same relationship as the Sherman law. It is a declaration of public policy which is to be considered in determining unfair methods of competition.

That it was passed subsequent to the Federal Trade Commission act cannot foreclose the commission from looking to the Clayton act for declarations of public policy. Even if it had no power to enforce any of its specific provisions as it has no power to enforce the specific provisions of the Sherman law, what language of section 5, permitting the commission to accept the public policy of the Sherman act, precludes it from regarding the Clayton act in like manner?

#### Public Policy Involved

The Clayton law, like the Sherman law, is a declaration of public policy with definition of specific methods which are prohibited. But these definitions, while they are limitations upon the application of the act in which they appear, are not limitations upon the provisions of section 5 of the Federal Trade Commission act, nor do they define its scope. Because the act confers jurisdiction in part upon the commission, it may in a given case proceed to issue a complaint founded on the Clayton law. In which case, the facts charged and proven must conform with the specific definition of that act's prohibition. But if the public policy of that act is contravened by the use of a method not specifically outlined in the act, the invasion of the public policy may be prevented none the less, under the power of the commission to prevent the use of all unfair methods of competition. In such case the Supreme Court might well say of the Clayton law, as it said of the Sherman law in the Beechnut case, "The Clayton law is not involved here except in so far as it shows a declaration of public policy to be considered in determining what are unfair methods of competition, which the Federal Trade Commission is empowered to condemn and suppress."

Section 7 of the Clayton act prohibits the substantial lessening of competition between competing corporations or the restraint of trade in any section or community or the creation of monopoly of any line of commerce where any one of these conditions may be the effect of any direct or indirect acquisition of the whole or part of the stock or other share capital of one competitor by another or of two or more competitors by a third competitor.

#### Three Competing Companies

In the pending case it seems to be clear that each of the three companies is a competitor of the other two. It is apparent that by the consummation of the proceedings now under way all competition between them will cease. The contention is that the Clayton act has no application because the plan does not contemplate the acquisition of any "stock or other share capital," but will be carried out by a purchase of assets. In other words, the public policy declared in the Clayton law may be ignored and competition between competing corporations be entirely eliminated because it is not done by the specific method prohibited in that statute.

If it were not for the continuing application of section 5 of the Federal Trade Commission act to any method which contravenes public policy whenever and however properly declared, because of a dangerous tendency unduly to hinder competition, the argument might be sound. The Beechnut case probably could not have been prosecuted to a successful conclusion under the Sherman law because there was no contract, combination or conspiracy present. If the Clayton law

stood alone, upon the facts stated, I question whether the appearance of a violation of that law appears in the instant case and doubt whether the commission could proceed as for a violation of that law.

#### The Federal Trade Act

But the Federal Trade Commission act has provided as an administrative agency equipped with an interpretive discretion, operative between the legislative act and the judicial review, authorized to take notice of all declarations of public policy in the field of free and fair competition and to prevent the use of any and all methods whether specifically defined by statute or not, which, because of a dangerous tendency unduly to hinder competition, contravene the public policy wherever found to be authoritatively declared.

In this aspect of the law it seems to me that it is unnecessary to consider whether the Sherman law or the Clayton law have been or will be violated by the proposed merger. The public policy as declared in the Clayton law is certainly opposed to the proceedings under consideration. That fact appearing, in my view of the law, the issue of a complaint under section 5 of the Federal Trade Commission act, is indicated as the necessary and proper procedure. For it is that act, if any, which has been violated by the pending merger of these three companies.

I do not commit myself to adherence to this view on final decision. It is the line of thought which has led me to vote for the issue of a complaint. I shall await the arguments of learned counsel with much interest and I hope, an open mind. Of course this is merely an individual expression. It is not to be attributed to the commission—nor to any other commissioner.

NELSON B. GASKILL,  
Commissioner.

#### Broadening Control of Railroad Shipments

WASHINGTON, Sept. 5.—Broadening its scope of control under its car service No. 24, the Interstate Commerce Commission last Thursday brought all railroads under its scope when it directed those west of the Mississippi river to give priority and preference to the movement of food for human consumption, feed for live stock, live stock, perishable products and fuel and to return empty cars intended to be used to carry these commodities. The order previously covered railroads east of the Mississippi river only. The order possesses the possibilities of delaying shipments of iron and steel and other products not included in the priority classification mentioned.

At the time this order was issued, the Federal Fuel Distributer announced details for the expedition of the movement of coal to the upper Great Lakes region, the statement being made that the plan was intended to be put into effect on Monday, Sept. 4 with the hope that 1,000,000 tons of coal may be started lakeward this week.

The circular points out that amendment No. 4 to service order No. 23 of the Interstate Commerce Commission transfers lake coal from class 3 to class 2 and covers all bituminous coal consigned to pools, or large cargo, or bunkerage coal, at any port on Lake Erie for transshipment by water to ports above Lake Erie. Pool coal will be consigned to the Ore and Coal Exchange at Lake Erie ports, but under the rules of the exchange, may not be so consigned until a permit has been issued by the exchange admitting the coal to the pools.

A. W. Gregg, general superintendent, the Whiting Corporation, Harvey, Ill., will address the first fall meeting of the Chicago Foundrymen's Club at the City Club, Chicago, on the evening of Sept. 9. He will discuss molding sand, the condition of foundry floors and various labor saving devices in the foundry.

The Magma Copper Co., Superior, Ariz., is planning to increase the capacity of its plant from 300 to 600 tons per day, and to erect a smelter. It expects the initial capacity to be about 500 tons per day.



## Charts Showing Condition of Brick Industry

Monthly charts compiled by the Refractories Manufacturers' Association, giving the production, shipments, stocks, new orders, unfilled orders and cancellations of fire clay and silica brick, expressed in percentages of the monthly economical producing capacity of the membership of that organization, for the month of July, has been issued. Since a large part of the production of these refractories finds its way into the iron and steel industry, and that industry lost ground as to plant operations in July, it is natural that the report should make a rather unfavorable showing as compared with the two previous months, when the effect of the coal strike was not being seriously felt and bad railroad transportation conditions were still in the future.

As of July 31, stocks of fire clay brick were about 201 per cent of monthly economical producing capacity, against about 193 per cent a month before; production at the end of July was at the rate of 60 per cent, against 61 per cent at the end of June, and July shipments were about the same as those of the previous month, or approximately 59 per cent. Unfilled orders were boosted to 87 per cent, as compared with 70 per cent in June, this being ascribable to the inability of Southern manufacturers to ship freely on account of railroad congestion and a slowing down in specifications on orders in other sections. Cancellations were equal to about 1 per cent of the monthly economical capacity, or about the same as in June.

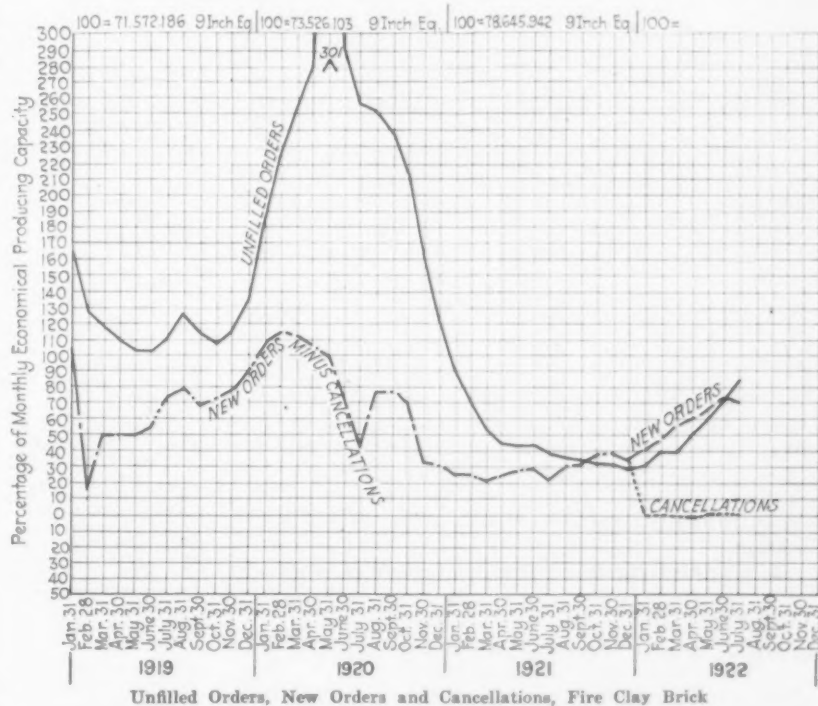
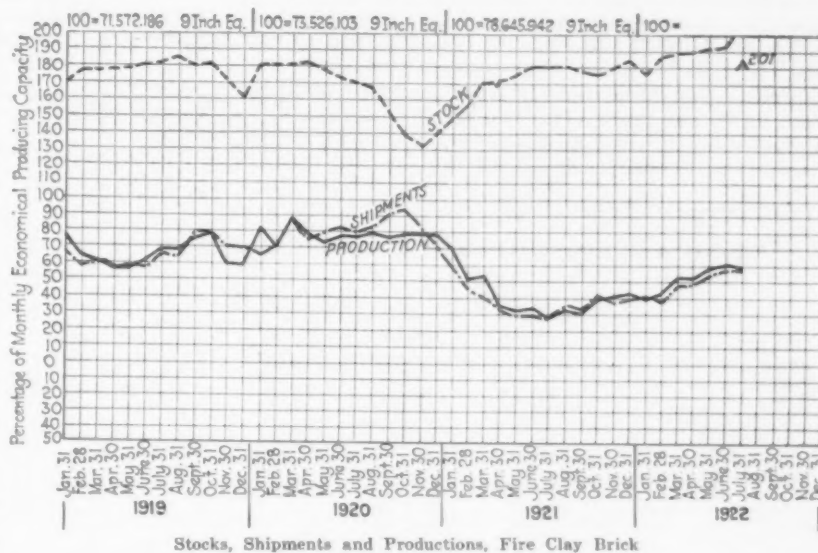
Stocks of silica brick, as of July 31, were about 138 per cent of monthly producing capacity, against 142 per cent at the end of June; production 41 per cent, against 42 per cent; shipments 146 per cent, against 139 per cent; unfilled orders 75 per cent, against 74 per cent, and new orders 59 per cent, against 51 per cent. There were cancellations in July equivalent to 3 per cent of monthly capacity, as contrasted with none in June.

### Large Increase in Coal Output

WASHINGTON, Sept. 5.—Soft coal production for the week of Aug. 28-Sept. 5 took a decided and expected upward turn, the Geological Survey estimating that it amounted to 9,200,000 or possibly 9,700,000 tons. It is a direct reflection of the result of the resumption of mining operations under the Cleveland agreement. For the week preceding the output was 6,700,000 tons, so that the gain aggregated between 2,500,000 and 3,000,000 tons. It emphasizes more than ever that the problem now faced by the country is one of transportation more than of bituminous production. Concern as to an adequate supply of soft coal now has passed, but legislation looking to distribution under Government authority, with priorities over car movements, has in mind the proper distribution of soft coal. There are those who think legislation of any kind now is unnecessary, but the Government apparently fears that many industries, as well as households, would be deprived of coal by unduly heavy shipments to some sources not given preferred ratings.

The rapid gain in output is indicated by the daily carloadings. Following a sharp increase on Friday

and Saturday of week before last, as coal began to flow in volume from the mines of Illinois and Indiana, last week opened with loadings of 30,054 cars on Monday. A decline to approximately 28,000 cars on Tuesday and Wednesday marked the first tightening of car supply. On Thursday additional shipments began from western Pennsylvania, and loadings reached 29,027 cars. Complaints of lack of cars already have been received from the union districts of eastern Ohio and northern West Virginia. One week previously it was the supply of mine labor; now it is transportation.



With the accumulation of orders for steel products, particularly rails, the plant of the Monterey Iron & Steel Co., Monterey, Mexico, is being taxed almost to capacity. It is announced that the limited output will be increased to 600 tons within a short time. At present the number of employees has risen to 3500, and an increment of 1500 will be set at work as soon as the fourth open-hearth furnace is ready for operation. It is also announced that the plant of the Monterey Wire Nail Co., which was established by St. Louis interests, is once more in operation and will soon be running to capacity.

Stove and furnace manufacturers in Detroit report a heavy demand for gas stoves, with furnace sales below anticipation. This may be a reflection of the building conditions which are badly hampered by lack of brick and cement.

# Iron and Steel Exports Fall Heavily

Drop 26 Per Cent Below June, and July Shows Smaller Than Any Other Month Since February—  
Japan Buys Less Here

WASHINGTON, Sept. 5.—Exports of iron and steel in July showed a sharp decline to 157,169 gross tons, valued at \$14,611,590, and were the lowest for the current year, or since December, 1921, when the total was 134,415 tons. Compared with June, the decrease was 55,126 tons, or 26 per cent. The falling off is attributed to restricted buying by foreign sources, especially Japan, and to the hampered condition of the iron and steel in-

the largest consumer outside of the United States, of American iron and steel, again took first place in July, after this rank had been held for a long period by Japan. Exports to these countries were 48,010 and

Exports, January, 1920, to July, 1922, Inclusive

	All Iron and Steel	Gross Tons Pig Iron	Semi-finished Material
Calendar year 1919....	4,239,837	309,682	258,907
January, 1920 .....	333,601	18,468	19,937
February .....	308,185	15,739	22,693
March .....	417,216	22,740	30,444
April .....	395,120	14,608	19,032
May .....	420,359	13,032	16,370
June .....	402,707	17,075	29,811
Fiscal year 1920.....	4,212,732	248,126	288,766
July .....	458,866	29,647	17,243
August .....	431,484	22,645	20,920
September .....	409,200	22,724	18,113
October .....	452,015	17,296	11,853
November .....	434,297	13,929	7,042
December .....	498,765	10,055	3,415
Calendar year 1920....	4,961,851	217,958	216,873
January, 1921 .....	547,394	3,710	315
February .....	393,328	1,307	92
March .....	230,635	2,320	1,023
April .....	162,592	1,234	678
May .....	142,551	2,541	749
June .....	119,081	1,689	1,106
Fiscal year 1921.....	4,168,619	129,541	82,549
July .....	86,523	2,744	363
August .....	75,827	2,424	2,447
September .....	95,169	3,078	1,318
October .....	102,582	2,830	153
November .....	122,290	1,299	1,869
December .....	134,415	2,550	250
Calendar year 1921....	2,213,042	28,305	10,363
January, 1922 .....	160,920	1,043	4,683
February .....	133,975	1,430	6,627
March .....	208,843	2,724	10,002
April .....	198,830	2,750	9,376
May .....	230,062	3,897	13,091
June .....	212,295	1,996	13,178
Fiscal year 1922.....	1,721,418	28,330	63,127
July .....	157,169	1,943	10,149

dustry in this country on account of the fuel and rail situation.

It is interesting to observe that Canada, normally

Destination of July, 1922, Exports of Iron and Steel in Lots of 500 Tons or More

Country	Gross Tons	Country	Gross Tons
Canada .....	48,010	Peru .....	2,414
Japan .....	37,585	Chile .....	1,882
Cuba .....	11,414	Hongkong .....	1,861
Brazil .....	7,539	Chosen (Korea)....	1,186
Argentina .....	7,538	Honduras .....	991
Mexico .....	5,140	Dutch East Indies...	943
Great Britain.....	4,273	Kwangtung .....	732
Colombia .....	3,799	Portuguese E. Africa	699
British India .....	3,677	Venezuela .....	604
Philippines .....	3,628	Uruguay .....	603
China .....	3,171	Guatemala .....	538
Australia .....	2,839	Ecuador .....	501
British South Africa.	2,804		

Countries of Consumption

The principal countries of consumption of some of the leading iron and steel products exported in July, 1922, were as follows:

<b>Plates</b>		<b>Black Steel Sheets</b>	
Canada .....	3,760	Japan .....	8,152
Hongkong .....	1,403	Canada .....	3,526
<b>Steel Rails</b>		<b>Barbed Wire</b>	
Japan .....	16,886	Argentina .....	2,657
Cuba .....	4,584	West Indies .....	1,705
Canada .....	2,364	Central America ..	893
		Australia .....	708

Number and Values of Machine Tools Exported in June and July

	June, 1922 Number Value	July, 1922 Number Value
Lathes .....	64 \$84,198	76 \$81,443
Boring and drilling machines	273 68,580	65 28,059
Planers, shapers and slotters	45 52,280	26 32,881
Bending and power presses..	32 31,531	18 7,551
Gear cutters .....	15 15,937	37 20,791
Milling machines .....	39 51,622	25 27,297
Sawing machines .....	24 6,678	12 1,013
Thread cutting and screw machines .....	33 17,290	24 16,756
Punching and shearing machines .....	62 20,685	31 9,581
Power hammers .....	38 3,162	12 8,972
Rolling machines .....	1 585	20 129,881
Wire-drawing machines .....	139 3,152	2 2,475
Polishing and burnishing machines .....	4 894	1 330
Sharpening and grinding machines .....	1,270 69,297	1,062 54,482
Total .....	2,039 425,891	1,411 407,614

37,585 tons, respectively. Indicative of the restricted character of foreign markets for American iron and steel products in July, it will be observed that the shipments to these two countries amounted to 85,595 tons,

Exports of Iron and Steel—Gross Tons

	July, 1921	July, 1922	Seven Months Ending July 1921	1922
Pig iron.....	2,744	1,943	15,493	15,773
Ferromanganese .....	15	179	413	908
Ferrosilicon .....	64	.....	218	249
Scrap .....	1,524	3,939	24,198	49,298
Ingot, blooms, billets, sheet bar, skelp.....	363	10,149	4,326	111,710
Iron and steel bars.....	5,534	12,927	163,990	114,428
Alloy steel bars* .....	.....	146	.....	2,781
Wire rods.....	854	1,844	10,964	34,135
Plates, iron and steel...	6,205	6,932	282,414	65,901
Sheets, galvanized .....	2,634	9,245	40,578	79,312
Sheets, black steel.....	6,819	12,830	70,459	182,388
Sheets, black iron .....	652	923	9,756	7,562
Hoops, bands, strip steel	1,263	3,237	13,393	19,855
Tin plate, terne plate, etc.	3,024	4,038	77,302	49,452
Structural shapes, plain material .....	11,320	8,676	244,810	62,636
Structural material, fabricated .....	294	3,221	9,401	24,442
Steel rails .....	20,074	29,919	256,938	184,382
Rail fastenings, switches, frogs, etc. ....	16	3,500	6,558	21,995
Boiler tubes, welded pipe and fittings.....	14,723	11,879	290,322	105,904
Cast iron pipe and fittings	2,634	2,948	37,814	15,292
Plain wire.....	1,860	9,529	55,689	78,394
Barbed wire and woven wire fencing.....	1,432	10,250	20,372	42,187
Wire cloth and screening*	.....	154	.....	776
Wire rope and cable* ..	.....	620	.....	2,601
Wire nails .....	992	2,881	17,296	42,160
All other nails and tacks	487	760	3,831	5,421
Horseshoes .....	12	145	364	485
Bolts, nuts, rivets and washers, except track.	1,028	1,725	19,449	10,436
Car wheels and axles† ..	.....	1,524	.....	10,432
Iron castings† .....	.....	749	.....	5,982
Steel castings† .....	.....	108	.....	1,358
Forgings† .....	.....	238	.....	1,500
Machine screws† .....	.....	11	.....	88
Total .....	86,523	157,169	1,676,348	1,345,129

or 54.1 per cent of the total exports for that month. The figures also are significant in showing how Japanese buying has contracted. Shipments to that country



MACHINERY EXPORTS  
By Value

	July, 1921	July, 1922	Seven Months Ending July, 1921	Seven Months Ending July, 1922
Locomotives.....	\$876,840	\$289,250	\$21,621,713	\$5,471,714
Other Steam Engines.....		950	98,340	33,311
Boilers.....	282,080	133,565	4,053,350	563,665
Accessories and Parts.....		1,170,763		1,550,225
Aeronautical Engines.....	108,472	551,189	1,195,920	3,773,086
Other Internal Combustion Engines.....	300,077	303,977	4,450,701	2,301,380
Accessories and Parts for.....		194,653		1,536,991
All Other Parts of Engines.....	551,284		9,090,197	
Complete Tractors, except Agricultural.....	29,990	525	5,603,874	70,612
Electric Locomotives.....	423,176		1,204,698	
Other Electric Machinery and Apparatus.....	1,716,498	444,404	19,813,207	5,435,918
Excavating Machinery.....	114,241		1,684,493	
Concrete Mixers.....	23,440	93,702	451,666	338,301
Road Making Machinery.....	68,530		643,548	
Elevators and Elevator Ma- chinery.....	130,179		1,556,862	
Mining and Quarrying Ma- chinery.....	482,677	303,727	5,702,109	2,210,046
(a) Well Machinery.....	708,923		8,869,353	
Pumps.....	513,749	474,452	9,713,679	3,276,063
Lathe.....	191,983	61,443	2,526,987	463,935
Boring and Drilling Machines, Reamers, Shapers and Slotters.....		28,059		363,087
Bending and Power Presses.....		33,881		181,861
Cut-off Machines.....		7,351		246,676
Milling Machines.....		25,791		63,094
Sawing Machines.....		27,597		186,242
Thread Cutting and Screw Machines.....		1,013		28,281
Planing and Shearing Ma- chines.....		16,756		103,591
Power Hand Tools.....		9,581		106,130
Rolling Machines.....		8,973		64,771
Welding Machines.....		129,881		154,385
Polishing and Burnishing Ma- chines.....		2,475		9,701
Sharpening and Grinding Ma- chines.....		330		10,009
Other Metal Working Ma- chinery and Parts of.....	1,437,219	489,306	12,551,150	3,112,798
Tooling Machinery.....	896,201	1,471,016	12,198,328	10,314,101
Sewing Machines.....	365,414	640,470	4,771,646	3,468,550
Shoe Machinery.....	99,926	127,087	1,356,572	584,114
Flour-Mill and Gristmill Ma- chinery.....	91,247	181,233	1,306,774	821,691
Saw-mill Machinery.....	441,873	365,755	12,855,992	1,543,890
Paper and Pulp Mill Ma- chinery.....	228,923		1,840,506	
Sawmill Machinery.....	81,325	25,575	859,598	341,752
Other Woodworking Machinery	110,035	161,331	2,106,663	735,997
Refrigerating and Ice Making Machinery.....	102,796	101,256	1,262,151	1,214,420
Air Compressors.....	154,956	166,475	3,079,683	1,180,899
Typewriters.....	726,756	884,427	8,689,946	6,812,059
Power Laundry Machinery.....	50,026	70,536	702,631	349,539
Typetting Machines.....	273,835	207,176	2,417,235	2,254,279
Printing Presses.....	422,007	218,062	5,794,320	2,253,640
Agricultural Machinery and Implement.....				
All Other Machinery and Parts.....	11,687,829	10,351,967	135,563,191	73,259,972
Total.....	\$23,797,800	\$19,830,443	\$306,507,444	\$137,230,755

in June amounted to 85,806 tons. The greatest single item of export in July was steel rails, the total amounting to 29,919 tons, of which Japan took 16,886 tons.

In the table showing tonnage exports to those countries which took 500 tons or more, only 2798 tons are unaccounted for, this representing the sum of the smaller lots. Of those shown, 66,093 tons went to North and Central America and the West Indies, 48,212 tons to Asia, 24,880 tons to South America, 7410 tons to Oceania, 4273 tons to Europe (Great Britain) and 3503 tons to Africa.

July exports for this year, however, were much heavier than they were for the same month of last year, when they totaled only 86,523 tons. For the seven-month period ending with July, 1922, exports amounted to 1,345,129 tons, valued at \$115,076,182, compared with 1,682,104 tons for the first seven months of 1921.

Machinery exports, exclusive of vehicles, were valued at \$19,830,443, as compared with \$23,554,356 in June and with \$23,797,800 in July, last year.

The number of metal working machine tools in July amounted to 411 as against 2039 in June. Because of the wide difference in the sizes of these tools, a mere statement of the number exported does not give a clear view for a study of the market, and for that reason the accompanying table is given showing both the number and the value of these tools exported in June and July.

Imports during July amounted to 71,971 gross tons, compared with 10,296 tons in July, 1921. For the seven months the imports were 187,684 tons, against 62,438

tons last year. Thus the imports for the one month, this year, exceeded the imports for the seven months, last year. Pig iron accounted for 18,828 tons in July, 1922, or more than the 15,595 tons for the first seven

## Imports of Iron and Steel—Gross Tons

	July		Seven Months Ending July	
	1921	1922	1921	1922
Ferromanganese.....	275	25,841	5,481	53,134
Ferrosilicon.....	309	2,300	1,922	7,076
Pig iron.....	2,567	18,828	15,595	45,227
Scrap.....	1,650	9,795	21,341	38,960
Steel bars.....	340	232	1,343	988
Bar iron.....	274	10,131	1,006	11,531
Structural steel.....	46	34	405	275
Billets, without alloys.....	2,469	66	2,916	5,648
All other billets.....	22	232	1,020	989
Steel rails.....	2,597	4,077	11,898	20,435
Sheets and plates.....	10	156	1,822	329
Tin and terne plates.....		37	308	2,118
Wire rods.....	77	244	506	974
Total.....	10,296	71,971	62,438	187,684
Manganese ore and oxide.....	5,368	62,518	298,746	210,747

months of 1921. Ferromanganese imported in July, 1922, was 25,841 tons, or nearly five times the amount for seven months, last year.

British Steel Exports Increase—Imports  
Smallest Thus Far in 1922

The July official returns on British foreign trade in steel iron show that the total exports were 251,743 gross tons. This is a slight increase of 2654 tons over the June total. The July exports make the average for the first seven months 268,160 tons per month. Exports of scrap are included in these totals. To Aug. 1, this year, total exports has been 1,791,681 tons against 935,950 tons for the same seven months in 1921.

The July imports were 55,893 tons or the lowest this year. The average for the first seven months is now 72,370 tons per month. In the first quarter the monthly average was 82,536 tons. These data include scrap. The following table shows comparative data:

British Steel Exports and Imports, Gross Tons		Exports	Imports
May, 1922.....		300,981	72,427
June, 1922.....		249,089	58,856
July, 1922.....		251,743	55,893
Aver. per month, first quarter, 1922...		267,047	82,536
Aver. per month, second quarter, 1922		274,830	67,785
Aver. per month, third quarter, 1922..		267,271	62,392
Aver. per month, 1921.....		144,885	152,734
Aver. per month, 1920.....		274,881	128,685
Aver. per month, 1919.....		188,519	50,801
Aver. per month, 1913.....		420,757	195,264

The following table covers the principal exports:

Principal British Exports, Gross Tons		Average per Month		July	
		1913	1921	1921	1922
Pig iron.....	78,771	8,602	7,777	27,675	
Steel rails.....	41,676	14,698	1,581	6,955	
Steel plates.....	11,162	10,673	2,680	6,238	
Galvanized sheets.....	63,506	17,635	2,691	37,739	
Steel bars.....	20,921	8,927	2,702	20,221	
Tin plates.....	41,208	18,873	8,827	40,809	
Black plates.....	5,679	1,178	506	5,429	
Steel sheets.....			779	13,356	
Total exports, first 7 months, 1922.....				1,791,681	
Total exports, first 7 months, 1921.....				935,950	

The most marked recovery in the July exports this year over those in July, 1921, has been in tin plates, galvanized sheets, steel bars, pig iron and steel sheets.

Pig iron imports in July were 6738 tons, compared with a monthly average in 1921 of 55,564 tons.

Iron ore imports in July were 287,213 tons, which compares with a monthly average in 1921 of 157,298 tons.

Manganese ore imports in July were 27,415 tons. Last year they were 14,405 tons per month and in 1913 they were over 50,000 tons per month.

# Tense Conditions in Connellsville Region

Coal and Coke Production Increasing—Frick Company  
and Some Independents Still Resist Unions—  
Demonstration on Labor Day

UNIONTOWN, Pa., Sept. 5.—Ten thousand United Mine Workers marched in a Labor Day parade here yesterday under the auspices of the Uniontown Trades and Labor Council, but in effect it was a United Mine Workers demonstration. Fifteen thousand people heard the speaking program in a baseball park during which James H. Maurer, head of the Pennsylvania Federation of Labor, bitterly assailed Attorney-General Daugherty for his action in securing Federal injunction in the railroad strike and attacked the Administration officials at Washington as dumb-bells and fossils. He charged the Administration action in the strike situations as being in the interest of big business. Organizer William Feeney of the Mine Workers claimed that the union efforts, being centered in the Connellsville bituminous region, were succeeding, and that 50 plants had been signed, denying that all of the plants were small operations. John O'Leary, mine worker organizer, said appeals were being sent union miners for financial assistance for Connellsville region strikers. A copy of a circular appeal says: "Five of our miners have been brutally murdered, and 25 others shot by hired gunmen. Thousands have been beaten by coal company thugs and State police, many of them made cripples for life." It adds: "Five thousand of the miners, with their wives and children, have been evicted from their homes, and 10,000 others have been served with eviction notices. The jails are filled with miners through trumped up charges brought against them by coal company hirelings." The circular closes with these words: "Immediate assistance is necessary to insure victory for these miners who are still on strike."

## Financial Aid Imperative

The union apparently realizes immediate financial assistance is necessary to keep the men out and that

returns from the check-off at union plants which have just resumed will come too late to count.

The demonstration was orderly and no trouble marked the day. Last night, however, a mine deputy was shot from ambush at Smock, as a result of which eight men were arrested. The deputy is believed to be dying.

Coal and coke production in the region is increasing rapidly. Big gains are being made in the Fair Chance district, where the famous strike of 1891 was broken. The union leaders declared that formal appeals had been made to the operators to get and sign the scale, and, if this is ignored, the strike will be fought to a finish. Miner delegations met at Brownsville yesterday in convention to discuss organization of a separate union district.

## Small Operators Sign

Operators signing the scale, possibly totaling 30, are small producers, most of them team track mines. The Frick company and the large independents are firm in their stand. In fact they say that the strike has been broken.

The effect of the big miner demonstration is expected to be the temporary bolstering up of the organization. Most observers say, however, that immediate financial assistance will be necessary to hold the men in line. Reports of disorders in the county being published outside grossly exaggerate conditions. It is admitted that the situation is tense, but it is believed that the State police and deputies have the situation well in hand.

The Frick and independent companies are centering their efforts on increasing production. Failure of the men to accept the new scale is being met with resumption of evictions as room is being made at company houses for imported workers.

# Conditions in Detroit Are More Hopeful

DETROIT, Sept. 5.—Detroit and Michigan industries are hopeful that the arterial railroads will be able to deliver the fuel promised them. Most of the lines operating into Detroit claim to be in a position to handle speedily all coal delivered to them. About 3000 cars, or a little more than half of Detroit's needs, have been brought into the city in the last seven days. With increasing daily shipments in transit, hopes are high for adequate supply for industrial purposes. The real burden is now placed on the railroads. Numerous rumors, which always supplement any announcement by the Ford company, are prevalent, but the original closing down notification effective Sept. 16 has not been modified in any way.

The leading coke producer has announced an appreciable advance on all grades for September delivery. Foundries are limited to their actual melt. The first dwindling supply of silvery iron has developed requests for maximum silicon in the regular grades.

Priority listings have placed sand and fire brick in a position that is causing the foundrymen caught short of these materials to worry.

The automobile industry maintains its unprecedented stride for this time of the year. Present production schedules carry through the fourth quarter and manufacturers generally are covered for raw and finished materials over this period. The heaviest demand

is now coming from the agricultural sections for passenger cars. This is a direct switch, as the early and mid-season demand for this type of car came from the industrial and commercial centers. With the exception of one or two makers that have advanced slightly, manufacturers with large production have set their lists for the remainder of the year.

The recent lay-off at the Ford tractor plant is recorded in the figures of the Detroit Employers' Association which shows 177,000 employed as against 183,000 a week ago.

The Michigan Manufacturers' Association, citing the railroad situation as having threatened production and looming even more as a menace in the present fuel shortage, has appealed to President Harding and Congress to put teeth in the Esch-Cummins bill. It specifically asks that laws be enacted to prohibit conspiracies resulting in strikes or interruption of the transportation system of this country and provide penalties therefor.

Pipe jobbers are unable to obtain their requirements of standard pipe or boiler tubing. Manufacturers will not promise definite delivery dates. Full finish and auto body sheets are still in urgent demand with deliveries about meeting weekly needs.

The Steel Corporation subsidiary is quoting 3.35c. on black sheets and 4.35c. on galvanized sheets. How-



ever, deliveries at these prices are extended and indefinite. The independents, with one exception, are quoting 3.50c. on black and 4.50c. on galvanized. Full finished sheets are quoted at 4.70c. to 4.85c.

### Slowly Recovering in Mahoning Valley

YOUNGSTOWN, Sept. 4.—This district is beginning to recover in an operating way from the restrictions imposed by the coal strike, the settlement of which has eased up the fuel supply to a point which has permitted the starting up of four idle blast furnaces. The Youngstown Sheet & Tube Co. has put on two stacks, now having three of its six furnaces making iron, while the Brier Hill Steel Co. has put on a furnace and the Shenango Furnace Co., Sharpsville, Pa., has started its No. 1 stack. It is possible that the list of active furnaces will be further swelled before the week ends, as the Republic Iron & Steel Co. is preparing to-day to put on a furnace and the same is true of the Sharon Steel Hoop Co., with regard to its Mary furnace at Lowellville, Ohio; the Trumbull-Cliffs furnace at Warren, Ohio, and the Struthers furnace at Struthers, Ohio.

Starting of the Sharon and Struthers stacks will be governed a good deal by conditions in the Connellsville district and local advices are to the effect that between the demands of the men for recognition of the union and an increasing shortage of cars for coke shipments, the production of beehive oven coke is not increasing materially nor with much rapidity. Coke prices have eased down considerably from their peak levels, but the complaint still is heard that it is difficult to secure sufficient tonnages to insure sustained operation of blast furnaces and the coke producers still are cautious about committing themselves to long time contracts. It seems that all open-top cars are being taken for coal shipments and lacking sufficient cars, operators are reluctant to charge the ovens.

Steel works operations have increased with most of the independent companies, which now have 42 open-hearth furnaces in operation, as against 30 last week, and one Bessemer plant as against none last week. Pig iron production has gained, but not to the extent indicated by the starting up of so many steel-making units, which may be at least partly ascribed to increased use of scrap. Suspension of shipping instructions on scrap contracts has been quite generally lifted and some fresh buying is noted, notably on the part of a Warren, Ohio, steel maker, who has lately taken several thousand tons of cast iron car wheels to replace pig iron at a price of about \$22 per gross ton delivered.

The best showing in operations of finishing mills is in the sheet mills. Out of a total of 110 such units all but 12 are scheduled. It is said that sheets are more profitable at present prices than any other product made in the Youngstown mills and steel consequently is going pretty heavily to that use.

In the steel market advances over Steel Corporation prices of sheets of \$2 to \$3 are asked by independents and from \$3 to \$5 on top of that for very early shipment. On plates the independent market here is from 2.25c. to 2.50c. The bar market is not clearly defined, because so little tonnage is available, but it is certain that less than 2c. can not be done. On strips the local makers are at 2.75c. base on hot-rolled and 4.25c. base on cold-rolled for fourth quarter shipment.

To provide 30,000,000 new cement sacks every year, 17,000 miles of 30-in. cotton cloth are required. This calls for 30,000 bales, or 15,000,000 lb., of cotton, and a year's work for 1600 cotton looms. Practically 90 per cent of the 380,000,000 sacks of Portland cement shipped in the United States last year was delivered in cotton sacks each containing 94 lb. of cement. The mills carry some 200,000,000 sacks in reserve.

Voters of Martins Ferry, Ohio, will vote in the November election on a bond issue of \$400,000, the proceeds of which will be used for a new water works and power plant.

### Industrial Activities

At the Boston & Maine Railroad, Concord, N. H., repair shops, 620 men were at work last week, contrasted with 800, a normal force. Of the 620, 253 are in the motive power department and the rest in the car department.

The Bethlehem Shipbuilding Corporation, Ltd., has approximately 3200 men on the payroll at its Fore River Works, Quincy, Mass., whereas in 1914, 3000 were employed. The plant is engaged in converting a battle cruiser into an airplane carrier for the Government.

The closing of the Ford plant is reflected in various New England manufacturing centers, where plants were engaged in turning out Ford parts. A majority of such plants, however, have sufficient other business on their books to keep fairly well occupied. New England's automobile industry is curtailed. The Locomobile Co., Bridgeport, Conn., is getting on its feet after having been taken over by new management, and the Rolls-Royce Co. of America, Inc., has sufficient business on its books to keep its plant running on present schedule the rest of 1922, at least. The other two most important concerns remain in the hands of receivers.

Henry Disston & Sons, Inc., Philadelphia, manufacturer of saws, files, etc., is operating its plant at close to capacity, giving employment to more than 3500 persons. At this same time a year ago the works were running at about 50 per cent of normal.

The Singer Mfg. Co., Elizabethport, N. J., manufacturer of sewing machines and parts, has advanced production by five hours a week, effective Sept. 5, affecting about 6500 employees. The working schedule will be changed from 8 a. m. to 4:45 p. m., five days a week, as operative for about 18 months past, to 7:30 a. m. to 5:15 p. m. with continuance of a five-day week for the present.

The American Car & Foundry Co., Terre Haute, Ind., is gradually increasing the working force at its local plant, and is now giving employment to approximately 1000 men under a full-time schedule. It is said that orders on the books insure this basis of operation for at least 12 months ahead.

The Gilbert & Barker Mfg. Co., Springfield, Mass., manufacturer of gasoline tanks, pumps, etc., has placed a night shift in operation at its plant to handle increased orders. All departments are now running on full time, or overtime, with a total working force of about 1200 persons.

Refractory manufacturing plants at Mount Union, Pa., are running at full capacity and effective Sept. 1, the wages of all classes of employees have been increased; laborers have been advanced from \$2.70 to \$3.50 a day, and corresponding increase given to skilled workers. The plants affected are those of the Harbison-Walker Co., the General Refractories Co., and the United States Refractories Co.

The Tacony Steel Co., Tacony, Pa., is maintaining production on a full 100 per cent basis at its rolling mills. Other plant departments are running at from 40 to 50 per cent of normal.

The Manganese & Steel Foundry, Ltd., has reopened the plant of the Sherbrooke Iron Works, Sherbrooke, Que., recently acquired, closed for some time past. Initial production will require about 3 tons of pig iron daily, and this rate will be increased gradually until capacity is reached.

Following the recent wage advance of 16 2/3 per cent at the main plant of the Nicholson File Co., Providence, R. I., and the adoption of a full time working basis, effective Sept. 5, replacing a five-day week, the company has made a corresponding advance at its branch plant at Anderson, Ind., as well as at the works of its subsidiary, the G. & H. Barnett Co., Philadelphia. About 1200 employees are affected at the Providence plant, and approximately 500 workers at each of the other two factories.

## AUGUST PIG IRON OUTPUT

## Loss in August 19,006 Tons Per Day as Compared With July

## Thirty-seven Furnaces Blown Out or Banked, Nine Blown In

The full effect of the railroad and coal strikes on the country's pig iron output is shown by the August returns for blast furnace production, particularly in the net loss of furnaces in active operation. During August there were 37 furnaces blown out or banked and nine blown in, a net loss of 28. This compares with a net loss in July of 20. Despite this sharp loss in active operation, the August total was substantially higher than the January or February output and not far from twice that of August, 1921, when the depression was at its height. The actual loss in daily output in August from that in July was 19,006 tons per day.

The production of coke and anthracite pig iron for the 31 days in August amounted to 1,816,170 gross tons, or 58,586 tons per day, as compared with 2,405,365 tons, or 77,592 tons per day in July, also a 31-day month. In February this year the daily output was 58,214 tons, so that the effect of the strikes has been to put the industry back to where it was early in the year.

The total number of furnaces in blast on Sept. 1 was 144, as compared with 172 on Aug. 1, and with only 69 on Aug. 1, 1921, the low point in last year's depression. The capacity of the 144 furnaces in blast on Sept. 1 is estimated at 54,645 tons per day, as compared with 70,605 tons per day for the 172 furnaces in blast on Aug. 1. The fact that most furnaces at the end of the month were operating at a very slow rate because of fuel and other conditions, makes the estimated capacity lower than it ordinarily would be.

The manganese alloy output for August also suffered a decline. The total was 19,327 tons, as compared with 26,049 tons in July. Of the August output 11,402 tons was ferromanganese and 7925 tons was spiegeleisen.

## Daily Rate of Production

The daily rate of production of coke and anthracite pig iron by months, from August, 1921, is as follows:

Daily Rate of Pig Iron Production by Months—Gross Tons			
	Steel Works	Merchant	Total
August, 1921 .....	26,037	4,743	30,780
September .....	27,189	5,661	32,850
October .....	33,365	6,850	40,215
November .....	37,960	9,223	47,183
December .....	41,173	12,023	53,196
January, 1922 .....	42,130	10,933	53,063
February .....	46,827	11,387	58,214
March .....	53,547	12,128	65,675
April .....	56,930	12,140	69,070
May .....	60,619	13,790	74,409
June .....	62,534	16,167	78,701
July .....	62,295	15,297	77,592
August .....	45,672	12,914	58,586

The figures for daily average production, beginning with January, 1916, are as follows:

Daily Average Production of Coke and Anthracite Pig Iron in the United States by Months Since Jan. 1, 1916—Gross Tons						
	1916	1917	1918	1919	1920	1921
Jan. 1922 .....	102,746	101,643	77,799	106,525	97,264	77,945
Feb. .....	106,456	94,473	82,835	105,006	102,720	69,187
Mar. .....	107,667	104,882	103,648	99,685	108,900	51,468
Apr. .....	107,592	111,165	109,607	82,607	91,327	39,768
May .....	108,422	110,238	111,175	68,002	96,312	39,394
June .....	107,053	109,002	110,793	70,495	101,451	35,494
July .....	104,017	107,820	110,354	78,340	98,931	27,889
Aug. .....	103,346	104,772	109,341	88,496	101,529	30,780
Sept. .....	106,745	104,465	113,942	82,932	104,310	32,850
Oct. .....	113,189	106,550	112,482	60,115	106,212	40,215
Nov. .....	110,394	106,859	111,802	79,745	97,830	47,183
Dec. .....	102,537	92,997	110,762	84,944	87,222	53,196

Among the furnaces blown in during August were the following: One No. 6 furnace of the Lackawanna Steel Co. in the Buffalo district; B furnace of the Bethlehem Steel Co. in the Lebanon Valley; B furnace of the Bethlehem Steel Co. in the lower Susquehanna Valley; Nos. 2 and 3 Clairton furnaces and No. 2 Duquesne furnace of the Carnegie Steel Co. and one furnace of the Jones & Laughlin Steel Co. in the Pittsburgh district; one Shenango furnace in the Shenango Valley; Mary furnace in the Mahoning Valley (Sept. 1) and Tuscaloosa furnace in Alabama.

## Output by Districts

The accompanying table gives the production of all coke and anthracite furnaces for August and the three months preceding:

Pig Iron Production by Districts, Gross Tons

	August (31 days)	July (31 days)	June (30 days)	May (31 days)
New York .....	77,222	145,831	148,115	150,141
New Jersey .....	11,604	10,745	10,725	8,836
Lehigh Valley .....	46,254	58,068	66,967	66,372
Schuylkill Valley .....	35,286	54,675	60,925	66,699
Lower Susquehanna and Lebanon Val- leys .....	20,679	26,698	26,501	21,313
Pittsburgh district .....	432,178	493,963	485,401	479,106
Shenango Valley .....	58,812	99,335	87,156	79,145
Western Penna. ....	62,659	81,927	91,424	103,072
Maryland, Virginia and Kentucky .....	41,324	58,506	54,687	47,862
Wheeling district .....	57,752	65,753	74,710	66,148
Mahoning Valley .....	130,555	233,813	240,470	227,053
Central and North- ern Ohio .....	191,880	261,084	236,374	218,547
Southern Ohio .....	15,305	29,517	30,272	29,311
Illinois and Indiana .....	342,363	472,371	454,937	459,631
Mich., Minn., Mo., Wis. and Colo. ....	67,265	101,656	93,732	89,147
Alabama .....	204,389	195,929	189,101	196,104
Tennessee .....	17,543	15,764	9,470	1,222
Total .....	1,813,070	2,405,365	2,361,028	2,306,679

## Capacities in Blast Sept. 1

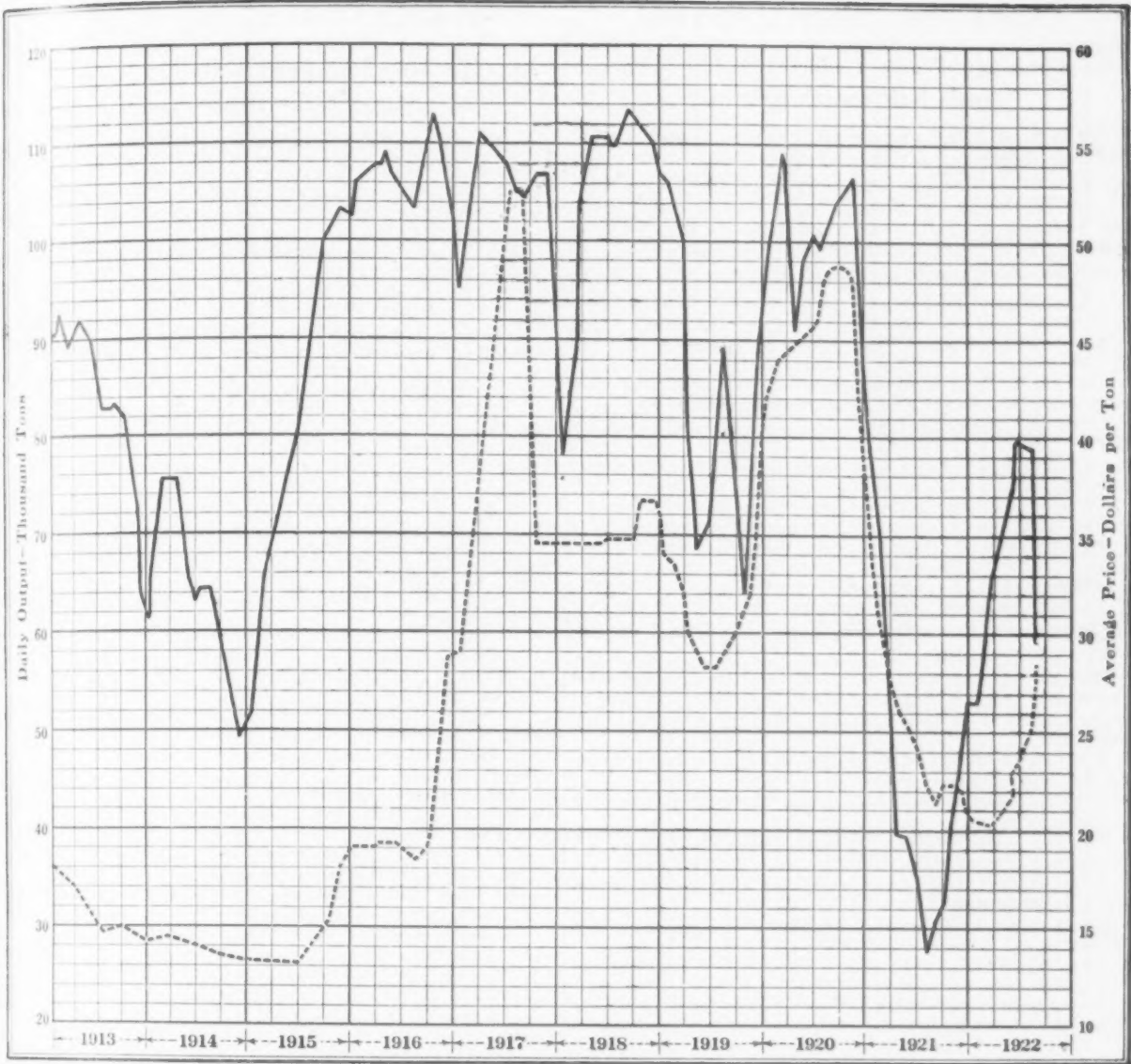
The following table shows the number of furnaces in blast Sept. 1 in the different districts and their capacity, also the number and daily capacity in gross tons of furnaces in blast Aug. 1:

Coke and Anthracite Furnaces in Blast

Location of Furnaces	Total Stacks	Sept. 1—		Aug. 1—	
		In Blast	Capacity per Day	In Blast	Capacity per Day
<b>New York:</b>					
Buffalo .....	22	7	2,700	10	3,300
Other New York .....	4	0	....	0	....
New Jersey .....	4	1	375	1	346
<b>Pennsylvania:</b>					
Lehigh Valley .....	18	4	1,760	3	1,350
Spiegeleisen .....	2	1	150	1	155
Schuylkill Valley .....	15	4	1,025	5	1,635
Lower Susquehanna ..	10	2	815	1	375
Lebanon Valley .....	6	1	150	1	150
Ferromanganese ..	2	1	50	1	60
Pittsburgh District ..	55	34	12,100	34	13,400
Ferromanganese and Spiegel .....	4	2	245	2	350
Shenango Valley .....	19	5	2,030	7	3,000
Western Pennsylvania ..	26	2	850	7	2,640
Maryland .....	5	2	730	2	790
Ferromanganese ..	1	0	....	1	80
Wheeling District .....	15	4	1,865	4	2,035
<b>Ohio:</b>					
Mahoning Valley ..	28	9	4,500	11	5,025
Central and Northern ..	26	11	6,000	16	8,200
Southern .....	16	1	500	1	915
Illinois and Indiana ..	42	17	9,000	24	13,900
Mich., Wis. and Minn. ..	11	5	1,875	6	2,150
Colorado and Missouri ..	6	0	....	3	1,100
<b>The South:</b>					
Virginia .....	16	0	....	0	....
Kentucky .....	7	2	520	3	735
Alabama .....	40	22	6,770	21	6,360
Ferromanganese ..	1	1	70	1	50
Tenn., Ga. and Texas ..	16	6	565	6	510
Total .....	417	144	54,645	172	70,605

Among the furnaces blown out or banked during August were the following: Buffalo A furnace of the Hanna Furnace Co., Harriet Y furnace of the Wickwire-Spencer Steel Co. and Nos. 6 and 8 furnaces of the Lackawanna Steel Co. in the Buffalo district; No. 3 Swede furnace of the Alan Wood Iron & Steel Co. in the Schuylkill Valley; No. 2 Lucy furnace of the Carnegie Steel Co., two furnaces of the Jones & Laughlin Steel Co. and one Midland furnace of the Pittsburgh Crucible Steel Co. in the Pittsburgh district; Nos. 1, 2 and 3 Farrell furnaces of the Carnegie Steel Co. in the Shenango Valley; two Johnstown furnaces of the Cambria Steel Co., one Dunbar furnace and the Perry and Adrian furnaces in western Pennsylvania; one furnace of the Bethlehem Steel Co. at Sparrows Point, Md.; the Norton furnace of the Norton Iron Works in Kentucky; A and B furnaces of the Youngstown Sheet & Tube Co. in the Mahoning Valley; one Central furnace of the American Steel & Wire Co., No. 1 furnace of the Otis Steel Co. and Nos. 2 and 5 furnaces of the National Tube Co. in central and northern Ohio; No. 3 Joliet furnace and Nos. 2, 4 and 8 South Chicago furnaces of the Illinois Steel Co., one Iroquois furnace and Nos. 5 and 7 Gary furnaces in





The Full Line Represents the Daily Production of Pig Iron and the Dotted Line Is the Average of the Price Per Ton of No. 2 Southern Pig Iron at Cincinnati, Local No. 2 Iron at Chicago and No. 2X Iron at Philadelphia

the Chicago district; one Bay View furnace of the Illinois Steel Co. in Wisconsin; and A, D and E furnaces of the Colorado Fuel & Iron Co. in Colorado.

Production of Steel Companies—Gross Tons

Returns from all furnaces of the United States Steel Corporation and the various independent steel companies, as well as from merchant furnaces producing ferromanganese and spiegeleisen, show the following totals of steel making iron, month by month, together with ferromanganese and spiegeleisen. These last, while stated separately, are also included in the columns of "total production."

Production of Steel Companies—Gross Tons						
	Total Production			Spiegeleisen and Ferromanganese		
	1920	1921	1922	1920	1921	1922
Jan.	2,232,455	1,932,159	1,306,045	23,957	22,228	6,874
Feb.	2,181,679	1,625,695	1,311,179	28,038	29,013	8,540
Mar.	2,480,668	1,323,443	1,629,982	35,275	41,294	13,695
Apr.	1,968,542	1,015,621	1,707,902	27,628	24,310	19,209
May	2,128,720	1,024,678	1,879,180	33,407	9,232	20,334
June	2,269,770	883,312	1,876,033	34,751	4,536	23,090
July	2,239,567	715,664	1,931,138	36,789	5,524	26,049
Aug.	2,251,943	897,144	1,415,832	36,985	3,878	19,327
Sept.	2,247,250	875,692	.....	39,546	3,289	.....
Oct.	2,393,644	1,034,312	.....	34,786	3,902	.....
Nov.	2,150,975	1,138,789	.....	26,944	3,525	.....
Dec.	2,047,167	1,276,381	.....	28,023	3,953	.....

Diagram of Pig Iron Production and Prices

The fluctuations in pig iron production from 1913 to the present time are shown in the accompanying chart. The figures represented by the heavy lines are those of daily average production by months of coke

and anthracite iron. The dotted curve on the chart represents monthly average prices of Southern No. 2 foundry pig iron at Cincinnati, local No. 2 foundry iron at furnaces in Chicago, and No. 2X at Philadelphia. They are based on the weekly quotations of THE IRON AGE.

Production of Coke and Anthracite Pig Iron in the United States by Months, Beginning Jan. 1, 1918—Gross Tons

	1918	1919	1920	1921	1922
Jan.	2,411,768	3,302,260	3,015,181	2,416,292	1,644,951
Feb.	2,319,299	2,940,168	2,975,879	1,937,257	1,629,991
Mar.	3,213,091	3,090,243	3,375,907	1,595,522	2,035,920
Apr.	3,288,211	2,478,218	2,739,797	1,193,041	2,072,114
May	3,446,412	2,108,056	2,985,682	1,221,221	2,306,679
June	3,323,791	2,114,863	3,043,540	1,064,833	2,361,028
½ year.	18,002,572	16,033,808	18,138,986	9,428,166	12,050,683
July	3,420,988	2,428,541	3,067,043	864,555	2,405,365
Aug.	3,389,585	2,743,388	3,147,402	954,193	1,816,170
8 mos.	24,813,145	21,205,737	24,353,431	11,246,914	16,272,218
Sept.	3,418,270	2,487,965	3,129,323	985,529	.....
Oct.	3,486,941	1,863,558	3,292,597	1,246,676	.....
Nov.	3,354,074	2,392,350	2,934,908	1,415,481	.....
Dec.	3,433,617	2,633,268	2,703,855	1,649,086	.....
Ttl. yr.	38,506,047	30,582,878	36,414,114	16,543,686	.....

\*These totals do not include charcoal pig iron. The 1921 production of this iron was 94,730 tons.

Building permits issued for improvements in St. Louis during August totaled \$2,206,670 against \$1,307,206 in August, 1921, a gain of \$1,307,206. Of the expenditures last month \$1,780,450 was for new structures and \$426,220 for alterations.

## LARGE LOCOMOTIVE BUYING

### One Company Books Orders for 138—Pennsylvania Railroad Orders 100

A total of 238 locomotives have been ordered from the two leading locomotive builders within the past week, these including 100 placed with Baldwin Locomotive Works by the Pennsylvania Railroad and 50 by the Chicago & Northwestern and 50 by the Missouri Pacific placed with the American Locomotive Co. In detail the week's orders were as follows:

The Missouri Pacific and the Chicago & Northwestern each ordered 50, the former taking 46 of the Mikado type and 4 of the mountain type, while the latter ordered 40 Mikado locomotives and 10 Pacific.

The Louisville & Nashville bought 12 of the Mikado type, these being in addition to 30 that were recently ordered.

Missouri, Kansas & Texas, 10 eight-wheel switching engines.

Chicago, Indianapolis & Louisville, 4 Mikado type and 3 Pacific type.

Gibbs & Hill, 4 double unit electric locomotives.

Wheeling Steel Corporation, 1 six-wheel tank locomotive. Superior Portland Cement Co., 1 four-wheel tank locomotive.

Vacuum Oil Co., 1 six-wheel tank locomotive.

Tavares & Gulf Railroad, 2 Prairie type.

Inquiries for freight cars have been issued as follows:

The St. Louis & San Francisco is inquiring for 1500 steel underframe hopper cars of 50-ton capacity, 1500 single-sheath 40-ton box cars and 300 steel underframe 40-ton stock cars.

The Northern Pacific is inquiring for steel center construction for 1000 cars.

The Baltimore & Ohio is inquiring for 1000 50-ton steel hopper cars.

The Belt Line Railroad of Chicago has asked bids on 150 55-ton hopper cars.

The Chicago & Northwestern is inquiring for repairs to 500 to 1000 gondolas.

The Cincinnati, Indianapolis & Western is in the market for 200 to 300 composite gondolas.

The Chicago & Eastern Illinois has inquired for prices on 17 baggage cars.

The Pennsylvania Railroad has ordered 100 locomotives from the Baldwin Locomotive Works and will build 15 additional at its own shops at Altoona, Pa.

## Export Trade Dull, but Japanese Buying of Rails Continues

NEW YORK, Sept. 5.—Export trade is quiet. There is some activity from Japan, a large portion of which is still Government business. One inquiry, in the market from a private source in Japan, calls for bids on 27 miles of 60-lb. rails, A. S. C. E. specifications, closing Sept. 10. The Imperial Government Railways closed Sept. 4, on 4700 tons of 75-lb., 20-lb. and 16-lb. rails, with splice bars. One Japanese export house recently received an order for 5000 boxes of oil-can tin plate from the Nippon Oil Co.

The Chinese market is dull, but exporters to the Far East dealing with China report fairly active business with the Philippine Islands. In the past fortnight, one exporter has booked orders for about 5000 kegs of nails, 400 tons of bars and 500 tons of sheets for shipment to Manila. During this period, 400 tons of flat bars was booked from China by this exporter.

Exporters and importers, which have been importing pig iron recently, continue to bring in small tonnages, largely of Scotch iron. Freight rates on iron from Glasgow to Boston, and from Glasgow to Montreal were formerly 15s. per ton. Recently the rates to Boston have increased to 18 to 20s., while the rate to Montreal is unchanged.

The Ritter Dental Mfg. Co., recently incorporated at Rochester, N. Y., is securing figures on equipment for a brass and aluminum foundry. R. J. Rosa is purchasing agent.

## FABRICATED STEEL BUSINESS

### Shipbuilding Company Gets Large New York Hotel Job—Other Awards

Among the fabricated steel awards of the past week are the following:

Hotel for the United Hotels Co., Forty-sixth Street and Madison Avenue, New York, 5000 tons, to New York Shipbuilding Corporation.

State Office Building, Richmond, Va., 750 tons, to Lehigh Structural Steel Co.

United Lutheran Publishing House, Philadelphia, 800 tons, to Bethlehem Fabricators, Inc.

Bridge at Fortieth Street, Philadelphia, 1300 tons, to Bethlehem Steel Bridge Corporation.

Apartment building for Clarence R. Siegel, Philadelphia, 1100 tons, to Bethlehem Fabricators, Inc.

Julia Richman High School, Second Avenue, New York, 1600 tons, to McClintic-Marshall Co.

Shore Road telephone building, Brooklyn, 800 tons, to Eidlitz & Ross. Steel to be fabricated by Bethlehem Steel Bridge Corporation.

Office building for Burroughs-Wellcome Co., East Forty-first Street, New York, 750 tons, to Hinkle Iron Works.

Apartment house in East Forty-second Street, New York, 600 tons, to Hinkle Iron Works.

Store building, Elizabeth, N. J., 400 tons, to Hedden Iron Construction Co.

Highway bridge, Binghamton, N. Y., 200 tons to American Bridge Company.

Highway bridge, LaSalle, N. Y., 100 tons to American Bridge Co.

Western Cartridge Co. buildings, Alton, Ill., 600 tons to Mississippi Valley Structural Steel Co.

Lawndale Theatre Building, Chicago, 375 tons to Gage Structural Steel Co.

International Harvester Co., five steel stacks for Wisconsin Steel Works, South Chicago, 221 tons to Graver Corporation.

South Park Commissioners, park buildings at Calumet Park, Chicago, 313 tons to unnamed fabricator.

Memorial Union Building for Purdue University, Lafayette, Ind., 160 tons to Insley Mfg. Co., Indianapolis.

Atlas Tack Co. shop building, St. Louis, 381 tons to a St. Louis fabricator.

Cleveland-Cliffs Iron Co., stocking trestle at Ishpeming, Mich., 350 tons to Worden-Allen Co.

Seaman Body Corporation, Milwaukee, automobile body shop extension, 798 tons to Worden-Allen Co.

Lehigh Portland Cement Co., Mason City, Ia., extension to crane runway, 100 tons.

Marathon Motor Car Co., Wausau, Wis., Ford garage and service building addition, 275 tons.

Steel for addition to by-product plant Carnegie Steel Co., Clairton, Pa., 6400 tons, placed through the Koppers Co.

### Structural Projects Pending

Inquiries for structural steel work now being figured on include the following:

Loft building at Seventh Avenue and Thirty-seventh Street, New York, 1000 tons.

Methodist Episcopal Hospital, Brooklyn, 500 tons.

Addition to American Museum of Natural History, New York, 900 tons.

Five bridges for the Pennsylvania Railroad, 1000 tons.

Walker Hotel, Washington, D. C., 4000 tons; former inquiry revived.

Chicago, Burlington & Quincy Railroad, girder spans, 1500 tons.

Cleveland Illuminating Co., switch house, 200 tons.

Pumping station, Cleveland, 1000 tons.

### Proposed Pig Iron Freight Reductions Are Suspended

WASHINGTON, Sept. 5.—The Interstate Commerce Commission has suspended from Sept. 1 to Dec. 30 tariffs proposing reductions in rates on pig iron from Southern producing points to Northern destinations. Protest had been made against the reductions by blast furnace interests in southern Ohio and the St. Louis district. Protest was also made against the proposed reduced joint rates of the Arrow Transportation Co., to apply from Florence and Sheffield, Ala., to Metropolis, Ill., by Robert Hula on behalf of the Steel & Tube Co. of America and five other iron and steel companies in the Chicago district.



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ESTABLISHED 1855

# THE IRON AGE

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## Prepare for April 1

Hopes are entertained that the United States Government will establish a "fact finding commission" in connection with the coal industry. If facts are to be secured, an answer to this question should first be sought: "Why does a man go into the coal producing business?" The answer would help to throw light upon the situation. The operators have been insisting that the profits, on the whole, are very moderate, although they manifest an indisposition to give the Government all the details. If profit has not been the attraction, what has? To an outsider the business does not seem to be particularly interesting. Yet it is admitted that there is a great excess of capacity, and indeed this excess is put forth as a justification for a larger margin per ton to the operator than would otherwise be fair.

A similar situation applies to the miners. There are too many miners and they do not work full time. Hence they demand extra high rates per ton, to make up. In the ordinary walks of life a trade or profession that is overcrowded pays poorly. Not so with coal mining. The more crowded it is, the longer are the vacations, with pay, for that is what the high tonnage rates amount to.

Apparently the ordinary economic laws are completely reversed when it comes to coal producing and coal mining. Why? One observes this fact, which may or may not be pertinent, that while the laws of the country forbid producers from combining to restrict output, it has been found that the law does not forbid the coal operators to disagree with the United Mine Workers, while the labor union is always careful to furnish the operators good ground for disagreement.

Coal strikes in the past have represented a guessing contest. Coal consumers endeavor to guess how long the prospective strike will be and lay in stocks accordingly, while the operators and miners endeavor to guess how long the stocks, once laid in, will last.

Now, however, a new condition is presented. The bituminous coal scale has been settled, but only for seven months. There will be no opportunity between now and April 1 to lay in any

stocks. Even the current requirements are unlikely to be met. The United Mine Workers have made no secret of the fact that their opposition to arbitration is based upon recognition of the fact that there is no comparison that could be made, with the cost of living, the rates of wages in other occupations, or anything else, that would begin to justify the rates they demand.

Only a brief respite, and a very expensive one, has been provided. If adequate preparation for meeting the situation that will confront the country on the first day of next April is not made, in the short time allowed, a still worse condition will be imposed upon the public.

All possible avenues of escape should be explored. The miners cannot be beaten at their own game. Last March coal went begging at \$1.50 a ton in some districts, yet the public did not stock up enough to prevent the miners winning by far the most brilliant victory in the history of labor disputes in this country. The study that is to be made should not lose sight of a detail which in itself is of considerable importance. That is, that the country is decidedly short of the very kind of labor that coal miners can perform. The country is particularly in need of the very workmen who by the existing system are maintained in idleness at public expense for long periods of time.

## The Railroad Injunction

Strong adjectives have been used in describing the injunction secured Sept. 1 by the Attorney General against the railroad strikers. The injunction does appear strong and drastic, yet upon scrutiny there are few things enjoined by it that are not illegal in themselves. The event, for this injunction is more than an incident, should prompt some serious reflection.

Injunctions are in vogue largely because court actions, whether criminal or civil, are slow. It having been decided recently by the Supreme Court that labor unions are suable, civil as well as criminal action can be had against conduct that marks the ordinary strike. The slowness of court procedure is a disgrace. While we grow



warn over the liberties taken by strikers, we should remember that there are other things seriously wrong with our management of affairs.

We do not look matters squarely in the face when it comes to labor disputes. We say glibly that no one should think of denying a man's right to quit work. We all know perfectly well that that is no strike. The right to strike, as defined by labor unions, means the right to prevent other men from taking the places union men have left. Whether we admit it to ourselves or not there is a common feeling outside of the unions that strikers ought to be allowed a little more leeway than simply to quit their jobs. Otherwise striking in its familiar form would never have survived to this date. We are not honest in this matter. There seems to be a lurking fear that employers would become too powerful if strikers were not allowed some latitude, were not allowed to break the law in a mild way at least.

If it were established that no act done in connection with a strike is less culpable than a similar act done in some other connection, there would be little need of injunctions in labor disputes and this injunction against the rail strikers would not present the appearance of being "drastic." It is not so established, however. Our habits of thought have led us otherwise, and it is even a part of the laws of the United States that labor unions are in a class by themselves. Section 3 of the Clayton Act says that "it shall be unlawful for any person to lease or make a sale or contract . . . on the condition, agreement or understanding that the lessee or purchaser thereof shall not use or deal in the goods . . . of a competitor." The same principle would prohibit a labor union from making an agreement for the closed shop. This being recognized, Section 6 of the act decreed that labor is not a commodity and made the sweeping provision that nothing in the act or in any of the anti-trust acts should apply to labor unions.

What we need to do is to clean house all around, and we should begin by clearing our minds. We shall get nowhere as long as some men are simply down on all labor unions on general principles and other men have a deep-seated and unrecognized feeling that they ought to be given some latitude. Two wrongs do not make a right. If the way is not clear to require that when a man quits work he must leave the field and forget it, we should either make the way clear or define how much dynamite per day he is entitled to explode in the exercise of his rights as a striker.

River coal has been playing a part in the relief of the fuel stringency. For years fine coal from the anthracite regions has been carried down the Susquehanna and other rivers. Deposits have been left on the beds of these rivers in many places and particularly where dams and obstructions occur. Two Pennsylvania steel companies are daily removing, from one river running by their plants, many tons of this buckwheat anthracite and are using it for making steam. One of the companies makes it a part of its open-

hearth furnace charges, as told elsewhere in this issue. Near Baltimore a large metallurgical company, which uses water power for its manufacturing operations, has for some time been selling this grade of coal, removed in large quantities from behind its dam. While the necessity for turning to them may be removed when anthracite production is again ample, these river deposits will probably be drawn upon for some time to come. In a period of scarcity prices for fuel they have saved a number of cost curves from a sharp turn upward.

### Saving Fuel in Steel Making

More than ever will fuel economy be a vital question in steel operations in view of the settlement of the miners' strike. For an indefinite time coal is to be more expensive in view of the higher wages at non-union mines, and its advance beyond the pre-war basis is far in excess of that in steel. Reduction of fuel consumption thus becomes of first importance in both blast furnace and open-hearth operations, and particularly in the latter, because progress in the improvement of open-hearth practice, until very recently, has not been so rapid as in the case of the blast furnace.

Several discussions have been published in THE IRON AGE recently, bearing directly on this problem and pointing to more economical fuel efficiency in open-hearth furnaces. One referred to the application of the blow-torch principle. In THE IRON AGE of July 20 the advantages of this process were detailed in an article, "Progress in Open-Hearth Practice." The significant statement was made that at a large steel plant in Ohio a furnace operating on the blow-torch principle has produced approximately 300 tons of high grade basic steel per day against only 200 tons when working under the old conditions. This is an increased efficiency of about 50 per cent. Also important is the statement that 20 per cent scrap was used and 15 per cent hot metal. So far as data go, fuel economies are estimated at 20 to 25 per cent. Contrast with this the author's statement that

a careful test 10 years ago at the Homestead works of the Carnegie Steel Co., extending over seven to eight months, showed that the losses due to the temperature of the escaping gases, radiation, conduction and other causes amounted to 95.77 per cent of the heat units supplied by the combustion of the incoming fuel. This brings us to the startling conclusion that, if we could eliminate all such losses, there would be only about 20 to 30 pounds of coal required per ton of steel produced.

In addition to increased fuel economy and greater output there are the advantages of more accurate control of fuel and air. A communication to THE IRON AGE of Aug. 3 pointed out that

it would be economical to inclose the checker chambers in a steel jacket, if only for the saving of heat effected by insulation, letting alone the great possibilities to be obtained by delivery of the gas and air under pressure. . . . Burn your gas in your furnaces and the checkers will take care of themselves.

Furnaces so designed that the fuel is more completely burned over the bath itself are one answer to the fuel cost problem. Refractories to

withstand the consequent higher temperatures are practically assured. Attendant advantages are better steel and the cutting down of the pig iron percentage in the charge.

On other pages of this issue a striking illustration is given of one result of fuel economy. In the production of high grade basic open-hearth steel from all-scrap charges, in the presence of manganese, no small factor is the high temperature resulting from better fuel efficiency in special furnaces, insuring the fullest refining effect of the chemical reactions.

Unquestionably much fuel is wasted in open-hearth furnaces. An abundance of cheap coal, and of natural gas while it lasted, has been one cause. The necessity for radical reforms has been forcibly impressed upon steel makers by recent events. Recently the prediction was made that the transition through which the open-hearth process is passing will so increase the output of existing units as to make the building of new furnaces unnecessary for several years. However that may be, the industry is evidently in the first stages of remarkable improvements which have come all too slowly and to-day meet a need of immediate urgency.

### Pig Iron Imports Overstated

July statistics of British and American iron and steel exports, elsewhere in this issue, emphasize the steadiness of the former and the sharp decline in the latter. The British July movement at 251,700 gross tons is about the same as the average per month for the year thus far, while American exports for July at 157,169 tons are next to the lowest for the year. While the coal and rail strikes have been a factor in this reduction, their full effect will be seen in still lower figures for August. A feature of the British statement is the export of 50,700 tons of pig iron and ferroalloys, of which the United States is credited with 25,560 tons. These figures are not a measure, however, of the pig iron movement to this country as probably half of the total is ferromanganese.

Current statements in various reviews of the Eastern pig iron market have exaggerated greatly the amount of foreign pig iron received in the United States at Atlantic ports. In June, 17,750 tons of pig iron and ferromanganese left Great Britain for the United States. As only 5850 tons of pig iron came into this country in June and only 43,000 tons of pig iron and ferromanganese left Great Britain in June and July, for the United States, it is evident that the statement in a recent pig iron review that in the 90 days preceding Sept. 1 about 100,000 tons of foreign pig iron came in at Atlantic ports and was distributed throughout the East is quite wide of the mark. Making an allowance for French iron, it would have required the clearing of 60,000 to 75,000 tons of pig iron from British ports bound for the United States, in the first week of August, to have August receipts here bring the June and July totals up to anything like 100,000 tons. And it is doubtful if early August clearings were one fourth of 60,000 tons.

## CORRESPONDENCE

### Interchangeability in the German Locomotives for Russia

*To the Editor:* In the Aug. 31 issue of your paper, Mr. Wikander says on page 544 apropos of the German industrial standards:

"To give a concrete illustration: At the time of my visit a syndicate of 19 German manufacturers and one Swedish manufacturer were executing an order for 700 locomotives for Russia, all of the same design, and every part in every one of them was being made interchangeable with the corresponding part in all others, all parts having been manufactured to the same fits and tolerances. This feature will have the great advantage of permitting the Russian Railroad to use any disabled locomotive as a store of spare parts for all others."

Mr. Wikander refers evidently to the order of the Russian Soviet Government for 700 locomotives to be made in Germany. The contract of the purchaser with the manufacturer does specify (in paragraph 5) that the parts are to be interchangeable, no matter at which of the works they are made; but the same contract also has a clause (in the same paragraph 5) stating that it is permissible to make these interchangeable parts fit one another by hand operations (filing, scraping, etc.).

It can be readily seen that this latter clause kills entirely the preceding one and the whole idea of interchangeability.

R. POLIAKOFF.

709 Sixth Avenue, New York,  
Sept. 1, 1922.

### St. Louis Labor Conditions

ST. LOUIS, Sept. 5.—The labor situation in the Eighth Federal Reserve District is reflected in the following table compiled by the Federal Reserve Bank of St. Louis from reports received from 200 leading employers in 20 of the largest cities in the district.

	Men	Women	Total	Wage Earners of Normal	Per Cent	Pay Roll
July 31, 1922..	112,918	21,150	134,068	155,410	—13.7	\$10,274,603.20
June 30, 1922..	109,365	24,217	133,582	157,684	—15.3	9,947,894.52
July 31, 1921..	102,969	19,986	122,955	155,410	—20.9	10,278,307.80

From the above tabulation it will be noted that the number of employees of reporting interests increased 11,113 or 9 per cent (men increased 9.6 per cent, while women increased 5.8 per cent) between July 31, 1921, and July 31, 1922. Wages, figured on a semi-monthly basis, decreased 8.3 per cent between July 31, 1921, and July 31, 1922.

### Automobile Production Heavy in August

Figures of the National Automobile Chamber of Commerce estimate the August production of pleasure cars and trucks at 264,000 machines, compared with 244,444 in July and 180,785 in August, 1921. For the first seven months of 1922 the total number of cars produced was 1,395,066. Adding the tentative figure for August, the eight months show 1,659,066 cars, compared with 1,668,550 cars for the twelve months of 1921.

In connection with the railroad strike situation, there has already been some handling of materials overland by truck that would ordinarily travel by rail, and the driving of finished cars overland has increased through lack of automobile freight car supply. Connecticut manufacturers of small tonnage items, including cold-rolled strip steel, are making a heavy proportion of their deliveries by motor truck. This is especially true of some concerns unusually favorably situated geographically, with most of their customers within a circle of 30 miles radius.



# Trend of the Safety Movement

## Day of Spectacular Accident Reduction Over—Steel Corporation a Pioneer in Safety Work—Meeting of National Safety Congress in Detroit

**T**HAT the day of spectacular accident reduction in large individual groups is practically over, that a progressive though probably slow decline in the severity of accidents may be expected with a clearer view of the engineering factor, and that there will be renewed study of the causes and remedies of fatal accidents as the seriousness of those accidents becomes more evident, were among the prophecies as to the probable trend of the safety movement, made by Lucian W. Chaney, United States Bureau of Labor Statistics, Washington, in a paper read at the eleventh annual safety congress of the National Safety Council, held in Detroit, Aug. 28 to Sept. 1.

The meetings were held at the Cass Technical High School and were attended by about 3000. The Congress received whole hearted support from the city of Detroit. The city had numerous exhibits at the convention headquarters and delegates were welcomed in the industrial plants where safety talks were given.

At the meeting held Thursday afternoon, Aug. 31, the following officers were elected to serve on the National Safety Council for the ensuing year:

President, Marcus A. Dow, general safety agent New York Central Railroad Co.  
Vice-president in charge of industrial safety, Charles B. Auel, Westinghouse Electric Co., East Pittsburgh.  
Re-elected vice-president in charge of public safety, David Van Schaack, Aetna Life Insurance Co., New York.  
Vice-president in charge of sectional activities, George T. Fonda, Fonda & Tolsted, Inc., Washington.  
Vice-president in charge of safety councils, L. A. DeBlois, Delaware Safety Council, Wilmington, Del.  
Treasurer and chairman of finance committee, Homer Niez, Commonwealth Edison Co., Chicago.  
Managing director and secretary, William H. Cameron, Chicago.

### Safety in Iron and Steel Plants

Mr. Chaney's paper dealt with the outstanding safety features in the iron and steel industry, the subject being treated under three heads, historical, practical and prophetic.

Individual plants in which standard practice is introduced will still make records in spectacular accident reduction, he said, but as a whole the trend is toward a slow decline, with fluctuations corresponding to the variations of industrial conditions. The great variable in the accident records, he emphasized, is the number of minor injuries, which, when reduced, as they may easily be, would necessarily make further progress slower.

As an illustration of the possibilities of minor injury reduction the case of a large group of plants where a foreman's accident-reduction bonus was instituted was cited. Previously more than 50 per cent of the accidents caused disability of one week or less, and about 25 per cent of the disabilities terminated in the second week. Under the foreman's bonus the minor injuries immediately declined, the number terminating in the first week being finally less in number than those in the second week. This was pointed out as entirely contrary to established opinion, it having been accepted without question that the minor injuries were due to careless habits of the workers, and that they would be difficult to eradicate. Experience proves, he said, that minor injuries are the easiest of all to control.

### Decline in Severe Accidents May be Expected

That a progressive though probably slow decline in the severity of accidents may be expected with a clearer view of the importance of the engineering factor, was also prophesied. The serious problem confronting the safety movement is the control of the severer forms of injury, Mr. Chaney stated. Referring to bulletin No. 298 of the Bureau of Labor Statistics in which are charted the severity of accidents in various

relations, he pointed out that in almost every instance the black portion is the large and conspicuous element. When the various kinds of accidents are weighted in some reasonable relation to their importance death is shown to be conspicuously the most important. Death is the dark shadow in the field of accident prevention.

Renewed study of the causes and remedies of fatal injuries will come as the relative seriousness of this class of accidents becomes more evident. That the severity rating throws up in true proportions the importance of death, is one of its chief merits, he said. Under ordinary conditions, even in the most haphazard industries, death is comparatively rare and but if judgment is based on this rarity rather than on the seriousness of the occurrence, such judgment is likely to be very much in error.

If the movement is to progress satisfactorily the more thorough study of death cases must result in further reconstructions and rearrangements as radical as any hitherto attempted Mr. Chaney stated.

### Steel Corporation a Pioneer in Safety Work

The steps by which the safety movement has advanced, the historical background, were taken up at length by Mr. Chaney. He began with the conference in 1906 of the casualty managers of the Steel Corporation's subsidiary companies, giving as an emphatic reason for the calling of such a conference that American industry reached a climax of slaughter in 1905 and 1906. Regarding the formation by the Steel Corporation in 1908 of the central safety committee and several of its subsidiaries, he said, "the curious inquirer can doubtless find scattered instances of similar organizations in other fields, but the committee system as an important feature of the accident prevention program began with these organizations and has contributed more largely than any other single feature of that program to its present degree of success."

The establishment of compensation plans by the Steel Corporation early in the development of safety effort was characterized as of utmost importance, every personal injury then becoming a potential cost item and instead of looking for defenses against a possible suit, casualty managers began to look into the causes of accidents and a way to prevent them.

The interest of the Association of Iron and Steel Electrical Engineers, the advent of the first safety congress in 1912, and the establishment of statistical data by the U. S. Bureau of Labor Statistics were outlined.

"Historically the iron and steel industry has made five outstanding contributions to the safety movement," said Mr. Chaney in concluding this phase of his subject. "The industry represented by the Steel Corporation initiated the movement and established the committee system. It made the first large trial of compensation. Through the Association of Iron and Steel Electrical Engineers it laid the foundation of the National Safety Council. It has directed attention in a new way to the importance of the engineering factor in accident prevention."

In discussing what have been the practical results of the safety movement, Mr. Chaney pointed out that the ordinary expression of success, such-and-such percentages of decreased accident occurrence, are apt to be misleading. Nothing is more striking he said than the decline of minor injuries which can be secured by certain kinds of appeal to the men. They respond remarkably, and to outward appearance success has been very great. Closer analysis, however, may show the old stubborn difficulties scarcely touched. Only by maintaining a continuous record for a considerable period and massing a sufficient body of data is it possible to secure dependable results, he emphasized.

# Iron and Steel Markets

## SOME GAIN IN OUTPUT

### August Low Point in Pig Iron—Furnaces and Steel Plants Resuming

#### Promise of Rail Buying at Chicago — The Strike Factor in Finished Steel Prices

Steel works are now gaining in output, after touching low point in the last week of August. The increase is not large as yet, but it promises to be greater next week. The betterment in the railroad situation is not marked, and after being down below 50 per cent the industry is satisfied for the present to aim at a 60 per cent operation.

Pig iron output went down rapidly for most of the second half of August. For the month the total was 1,816,170 tons, or 58,536 tons a day, against 2,405,365 tons in July, or 77,592 tons a day. The net loss in active furnaces in the month was 28 and the daily capacity of the 144 furnaces in blast September 1 was 54,645 tons, against 70,605 tons a day for 172 furnaces on August 1.

The upward turn in the few days since the opening of the month has already brought back nine furnaces to the active list—five in Pennsylvania, including three in the Pittsburgh district, three at Youngstown, and one at Cleveland. From half a dozen to a dozen more are preparing to go in in the next ten days.

A gain, but not a large one, has been made in Connellsville coke output, as the non-union men are still holding out, but for some time increase in steel production will come faster than that in pig iron production. Merchant companies whose blast furnaces are out must make wage adjustments and besides must get cheaper coke before they can start up to make deliveries on contracts taken much below to-day's prices.

Steel companies are unable to get sufficient box cars for the movement of products like wire and tin plate and this shortage promises to be worse. The use of open top cars for coal movement is also curtailing the supply of such cars for steel mills. Still overhanging the industry is the cloud of common labor shortage. In respect to railroad equipment what has been called a car shortage is more truly motive power trouble.

Consumers of steel in a number of lines are showing more concern over their ability to secure continuous supplies from the mills. However, the strike factor in the higher prices the mills are now asking prevents any large business on this basis and the general belief is that deliveries will grow easier even though progress in that direction be but slow.

The Chicago district as the largest railroad buying center, gives more definite promises than any other in respect to future demand. It reports that orders for 300,000 tons of rails for next year await only the naming of the 1923 price; also that there is new interest in railroad bridge material. There

is increased buying of track fastenings at Chicago, one order calling for 15,000 tons of tie plates.

Locomotive buying continues on a large scale, orders for 238 being entered in the week, including 100 for the Pennsylvania and 50 each for the Chicago & Northwestern and the Missouri Pacific. Car orders are not numerous, but there are inquiries for about 5000 new cars and repairs for 1500 to 2000.

Independent sheet companies still average a better operation than the Steel Corporation, the figures being 80 per cent and 60 per cent. Generally they are asking \$2 to \$3 a ton more than the corporation's prices. There is practically no suspension of shipments of automobile sheets. In tin plates there have been intimations of an advance beyond \$4.75 in view of increased steel costs.

The price of Southern pig iron has advanced \$2 and \$25, Birmingham, is now the prevailing quotation, but the shipment of iron to the North has almost entirely ceased on account of the railroad congestion. In the North, shipments show improvement in most centers. Prices at Chicago and in the East have advanced \$2 on most grades. Foreign iron is being sold in moderate tonnages with a tendency of prices to advance. It is not easy to buy abroad for delivery before November, but a considerable tonnage has been shipped or is in the hands of importers, though the total of arrivals thus far has been much overstated.

Iron and steel exports dropped to 157,000 tons in July, or 26 per cent below the June total, and August figures are expected to show further recession.

Finished steel, according to THE IRON AGE composite price, remains at 2.412c. per lb., as for the last two weeks. This compares with 2.279c. one year ago and 2.062c. on Jan. 1.

Pig iron has advanced, THE IRON AGE composite price having risen from \$29.52 to \$30.52, the highest since Jan. 25, 1921. The price one year ago was \$19.64; on Jan. 1 it was \$18.68.

## Pittsburgh

### Settlement of Coal Strike Brings Moderate Improvement in Steel Plant Operations

PITTSBURGH, Sept. 5.—From an operating standpoint, the iron and steel industry in the past week has begun to show definite betterment as a result of the recent settlement of the coal strike, although this settlement appears to be confined to the union districts and the non-union production has not shown expected gains. The Jones & Laughlin Steel Co., since the resumption at its mines Aug. 28, has turned on the blast at two of its Eliza blast furnaces and one Aliquippa stack, which were banked when the pinch in coal supply became acute in July. The Youngstown Sheet & Tube Co. has put on two blast furnaces since a week ago and the Brier Hill Steel Co. and the Sharon Steel Hoop Co. each one. The Carnegie Steel Co. also has added one furnace to its active list and with the furnace of the Shenango Furnace Co., which started Aug. 29, there are now 58 active furnaces in the district bounded by Johnstown, Pa., on the East, Wheeling, W. Va., on the South, and Warren, Ohio, on the North. This is a gain of eight stacks in about 10 days and several others, chiefly steel works furnaces, are being made ready to start. In-



## A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics

At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	Sept. 5, 1922	Aug. 29, 1922	Aug. 8, 1922	Sept. 6, 1921
No. 2N, Philadelphia...	<b>\$36.14</b>	<b>\$34.14</b>	<b>\$31.14</b>	<b>\$20.84</b>
No. 2, Valley furnace...	<b>35.00</b>	33.00	29.00	21.00
No. 2, Southern, Cin'tif...	<b>29.05</b>	27.05	24.05	23.50
No. 2, Birmingham, Ala...	<b>25.00</b>	23.00	19.50	19.00
No. 2 foundry, Chicago*	<b>32.00</b>	30.00	27.00	21.00
Basic, del'd, eastern Pa...	<b>32.00</b>	28.64	27.25	19.00
Basic, Valley furnace...	30.00	30.00	26.00	19.00
Valley Bess., del. Pitts...	<b>34.77</b>	33.77	28.76	21.96
Malleable, Chicago*	<b>32.00</b>	30.00	27.00	21.00
Malleable, Valley	33.00	33.00	28.00	20.00
Gray forge, Pittsburgh...	34.76	34.76	28.76	21.96
L. S. charcoal, Chicago...	36.15	36.15	33.15	33.50
Perronanganese, seaboard	67.50	67.50	67.50	70.00

### Rails, Billets, etc., Per Gross Ton:

	Sept. 5, 1922	Aug. 29, 1922	Aug. 8, 1922	Sept. 6, 1921
O.-h. rails, heavy, at mill...	<b>\$40.00</b>	<b>\$40.00</b>	<b>\$40.00</b>	<b>\$47.00</b>
Bess. billets, Pittsburgh...	38.00	38.00	35.00	29.00
O.-h. billets, Pittsburgh...	38.00	38.00	35.00	29.00
O.-h. sheet bars, P'gh...	<b>40.00</b>	38.00	35.00	30.00
Forging billets, base, P'gh	43.00	43.00	40.00	34.00
O.-h. billets, Phila...	45.17	45.17	42.67	35.74
Wire rods, Pittsburgh...	45.00	45.00	40.00	38.00
Skelp, gr. steel, P'gh, lb.	2.00	2.00	1.80	1.70
Light rails at mill...	2.00	2.00	1.75	1.75

### Finished Iron and Steel,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia...	<b>2.42</b>	2.325	2.025	2.00
Iron bars, Chicago...	2.25	2.25	2.00	1.75
Steel bars, Pittsburgh...	2.00	2.00	1.80	1.65
Steel bars, Chicago...	<b>2.10</b>	2.35	1.90	1.85
Steel bars, New York...	2.34	2.34	2.14	2.03
Tank plates, Pittsburgh...	2.00	2.00	1.80	1.70
Tank plates, Chicago...	<b>2.30</b>	2.20	1.90	1.75
Tank plates, New York...	2.34	2.34	2.14	2.08
Beams, Pittsburgh...	2.00	2.00	1.80	1.70
Beams, Chicago...	<b>2.20</b>	2.35	1.90	1.80
Beams, New York...	2.34	2.34	2.14	2.08
Steel hoops, Pittsburgh...	2.75	2.75	2.50	2.25

\*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

The prices in the above table are for domestic delivery and do not necessarily apply to export business.

Sheets, Nails and Wire,	Sept. 5, 1922	Aug. 29, 1922	Aug. 8, 1922	Sept. 6, 1921
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28 P'gh	3.35	3.35	3.15	2.75
Sheets, galv., No. 28, P'gh	4.35	4.35	4.15	3.75
Sheets, blue an'd, 9 & 10	2.50	2.50	2.40	2.25
Wire nails, Pittsburgh...	2.60	2.60	2.40	2.75
Plain wire, Pittsburgh...	2.35	2.35	2.25	2.50
Barbed wire, galv., P'gh...	3.15	3.15	3.05	3.40
Tin plate, 100-lb. box, P'gh	<b>\$4.75</b>	<b>\$4.75</b>	<b>\$4.75</b>	<b>\$5.25</b>

### Old Material, Per Gross Ton:

Carwheels, Chicago	\$22.50	\$22.50	\$19.50	\$13.75
Carwheels, Philadelphia...	<b>20.00</b>	19.00	17.50	17.00
Heavy steel scrap, P'gh...	18.50	18.50	17.50	13.00
Heavy steel scrap, Phila...	15.50	15.50	15.00	11.50
Heavy steel scrap, Ch'go...	<b>17.50</b>	17.00	15.50	11.00
No. 1 cast, Pittsburgh...	19.00	19.00	19.00	16.50
No. 1 cast, Philadelphia...	19.00	19.00	18.00	17.00
No. 1 cast, Ch'go (net ton)	<b>21.50</b>	20.00	18.00	13.25
No. 1 RR. wrot, Phila...	18.50	18.50	17.50	14.50
No. 1 RR. wrot, Ch'go (net)	<b>17.50</b>	15.50	14.25	11.50

### Coke, Connellsville, Per Net Ton at Oven:

Furnace coke, prompt...	\$10.00	\$10.00	\$14.00	\$3.00
Foundry coke, prompt...	12.00	12.00	15.00	4.00

### Metals,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York...	14.12½	14.12½	14.12½	12.00
Electrolytic copper, refinery	13.75	13.75	13.75	11.75
Zinc, St. Louis...	6.25	6.25	6.30	4.20
Zinc, New York...	6.60	6.60	6.65	4.70
Lead, St. Louis...	5.55	5.55	5.50	4.20
Lead, New York...	5.90	5.90	5.85	4.70
Tin (Straits), New York...	<b>32.50</b>	32.30	32.62½	27.25
Antimony (Asiatic), N. Y.	<b>5.37½</b>	5.25	5.25	4.50

### Composite Price, Sept. 5, 1922, Finished Steel, 2.412c. Per Lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets	Aug. 29, 1922, 2.412c. Aug. 8, 1922, 2.212c. Sept. 6, 1921, 2.279c. 10-year pre-war average, 1.689c.
These products constitute 88 per cent of the United States output of finished steel	

### Composite Price, Sept. 5, 1922, Pig Iron, \$30.52 Per Gross Ton

Based on average basic and foundry iron, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham	Aug. 29, 1922, \$29.52 Aug. 8, 1922, 25.94 Sept. 6, 1921, 19.64 10-year pre-war average, 15.72
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crease in blast furnace operations has been attended by some gain in steel works operations. The Carnegie Steel Co. this week is expected to get out close to 60 per cent of its capacity of ingots, as against about 55 per cent last week while in Youngstown active open hearth furnaces have increased in number from 30 to 42. There has as yet been little change in operating conditions in the Wheeling district plants.

Permanence of the upward slant of operations still is a matter of doubt, however, for while production of coal in Western Pennsylvania and Northern West Virginia, as measured by railroad reports of loadings, is above 75 per cent of normal capacity, transportation conditions already are affecting shipments and the trade also fears that the application of the priority system of distribution may affect supplies. There is much talk of car shortages, but as yet such a condition does not exist. The trouble is with the motive power. Car shortages are expected, when the troubles incident to the opening of mines long idle are ironed out and there is a relatively full production of coal. A number of the

steel companies are finding it hard to get a sufficient allotment of box cars for the movement of such products as wire and tin plate and this shortage is likely to be worse before it is better, with the crop movement immediately ahead while demands for open top cars for coal movements will mean a curtailment in the supply of that kind of equipment for the steel mills. Hanging like a cloud over the industry is the continued shortage of mill labor. Following the increase in plant operations a large Pittsburgh independent has re-entered the market in a moderate way for new tonnages of plates and bars for early delivery, but as a general proposition, the situation as far as prompt shipments are concerned is not yet materially easier.

**Pig Iron.**—Such business as is being done—and it is entirely for small lots for immediate delivery—is confined very largely to foundry iron. We note sales of Bessemer iron amounting to 700 tons, but a recent inquiry for 2000 tons of basic iron from a local melter has been withdrawn and there have been no new inquiries of any account lately in these grades. Prices

quoted on the 2000-ton inquiry for basic ranged anywhere from a little above \$32 delivered, this being by an Eastern steel company, to \$32, Valley furnace basis. Bessemer iron on the basis of recent sales now is quotable at \$33 Valley furnace, an advance of \$1 a ton over last week's prices. In absence of sales, basic iron still is nominally rated at from \$30 to \$32. The N. & G. Taylor Co., Cumberland, Md., which recently inquired for 2500 tons of basic, is understood to have placed the business in the East. It is interesting to note, in face of current prices for Valley basic and Bessemer iron, that the August averages of W. P. Snyder & Co. on these grades were \$28.67 for Bessemer and \$25.41 for basic. Evidently little of the month's business was at the prices reached late in the month. July averages were \$25 for Bessemer and \$24.56 for basic. On the basis of late sales of foundry iron, the market now is quotable at \$35 Valley furnace, an advance of \$2 a ton over the recent price. The whole market is on a spot basis and not very representative of the price of forward deliveries. Until coke prices are definitely settled, producers will be in the dark as to costs; consequently they are not making prices on future shipments, but it also is true that few melters are interested at the moment in future requirements.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being \$1.76 per gross ton:

Basic .....	\$30.00 to \$32.00
Bessemer .....	33.00
Gray forge .....	33.00
No. 2 foundry .....	35.00
No. 3 foundry .....	33.00
Malleable .....	33.00

**Ferroalloys.**—New schedules have been announced on silveries and Bessemer ferrosilicon by one Jackson, Ohio, producer, who now is quoting 8 per cent silveries at \$41.50 and 10 per cent Bessemer ferrosilicon at \$50.50. This is an advance of \$5.50 a ton over recent nominal quotations and \$9 over the last previous official prices. Other ferroalloy prices are unchanged. British ferromanganese still is available for deferred shipment at \$67.50 c.i.f. Atlantic seaboard, but spot material has sold recently at \$70 and is held at \$72.50 by some sellers. Domestic material is available for prompt delivery at \$75, c.i.f. Atlantic seaboard, for carload lots. An Ohio maker of alloy steels is seeking a round tonnage of 80 per cent material. Spiegeleisen is held at \$39 furnace for 20 per cent, but we note no sales that high, most recent business having been at least \$1 per ton less.

We quote 78 to 82 per cent ferromanganese, \$75 c.i.f. Atlantic seaboard for domestic; British, spot, \$70 to \$72.50; British, future, \$67.50; German, 76 to 80 per cent, \$67.50 to \$70. Average 20 per cent spiegeleisen, \$39 furnace; 16 to 19 per cent, \$38 furnace; 50 per cent ferrosilicon, domestic, \$55 to \$60 furnace, freight allowed. Bessemer ferrosilicon is quoted f.o.b. Jackson and New Straitsville, Ohio, furnaces as follows: 10 per cent, \$50.50; 11 per cent, \$53.80; 12 per cent, \$57.10; 13 per cent, \$61.10; 14 per cent, \$64.10; silvery iron, 6 per cent, \$39; 7 per cent, \$40; 8 per cent, \$41.50; 9 per cent, \$43.50; 10 per cent, \$45.50; 11 per cent, \$48.80; 12 per cent, \$52.10. The present freight rate from Jackson and New Straitsville, Ohio, into the Pittsburgh district is \$3.66 per gross ton.

**Iron and Steel Bars.**—The general range of prices on steel bars is from 1.90c. to 2.25c., the lower figure representing about what the Steel Corporation is charging regular customers on such business as it can take, and this for indefinite delivery and the higher prices what some independents are demanding for early delivery. The leading independent maker here is quoting from 2c. to 2.15c. Iron bars are higher, now being quotable at 2.45c. for refined iron.

We quote steel bars rolled from billets at 1.90c. to 2.25c.; reinforcing bars, rolled from billets, 1.90c. to 2.25c. base; rail steel reinforcing bars, 1.90c. to 2c.; refined iron bars, 2.45c. in carloads, f.o.b. mill, Pittsburgh.

**Billets, Sheet Bars and Slabs.**—The present market is a small affair, because makers generally are more inclined to let the material go to their own finishing mills than to sell, and are asking prices which are intended to, and in fact do, discourage purchases. Some mills having more billets than can be rolled down on account of labor shortages, might take a little business at \$38, Pittsburgh, but as a general rule, \$40 is as low as is being named on either billets or sheet bars and on slabs the same price is asked.

We quote 4 x 4-in. soft Bessemer and open-hearth billets at \$38 to \$40; 2 x 2-in. billets, \$40; Bessemer and open-hearth sheet bars, \$40; slabs, \$40; forging billets, ordinary carbons, \$43 to \$45, all f.o.b. Youngstown or Pittsburgh mills.

**Cold-Finished Steel Bars and Shafting.**—In keeping with the strength of hot-rolled bars and the difficulty which makers of cold-finished bars are having in securing supplies, prices of the latter product have been advanced \$5 per ton. All makers of cold-rolled, drawn and turned bars now are quoting 2.50c. base, Pittsburgh, per carload, while ground shafting has advanced to 2.90c. base, f.o.b. mill, for carloads. The less than carload price is \$5 per ton more.

**Hot-Rolled Flats.**—The market is firm on the basis of 2.75c., Pittsburgh, with makers as heavily committed as they care to be and not anxious to add to their obligations.

**Bolts and Nuts.**—Leading makers have announced an increase in prices averaging about 10 per cent. Large machine bolts now are quoted at 50, 10 and 10 per cent off list. This change reflects the strength and security in raw materials, although increased labor costs also are a factor. Demand, independent of specifications on third quarter contracts, is reported to be good. New discounts are given on page 627.

**Rivets.**—There has been a further revision upward of prices and all makers now are quoting large button head structural rivets at \$3, base, per 100 lb., Pittsburgh, and large cone head boiler rivets at \$3.10. Small rivets have been advanced to 65 and 5 per cent off list. It is claimed that rivets cannot be made profitably even at these prices with steel bars at 2c. to 2.15c. base and wire rods at \$45 per ton. Prices and discounts are given on page 627.

**Structural Material.**—The situation with regard to deliveries still is bad, but some encouragement is afforded by the fact that the Jones & Laughlin Steel Co. is benefiting by the improved fuel situation, and because the Homestead Works, Carnegie Steel Co., is on a higher operating rate as to both steel works and rolling mills. Prompt shipments are not easy to secure, except at high prices, but on the bulk of current inquiries the quotation is right around 2c. Prices are given on page 627.

**Plates.**—The leading independent here has reentered the market in a moderate way, quoting a minimum of 2.25c. This appears to be as low as early deliveries can be placed and some independents are asking 2.50c. for prompt shipment. The Steel Corporation price nominally is 2c. on such business as it can take and this strictly from its regular customers. Prices are given on page 627.

**Sheets.**—Independent companies still are making a better showing as regard operations than the leading interest. The latter is running less than 60 per cent while the independents are averaging about 80 per cent. Some of the independents are quoting the Corporation sheet prices, but most of them are asking \$2 to \$3 a ton above these levels and even more when quick shipment is wanted. Specifications are coming along freely and much new business is being passed up because of the fear that conditions may not be as good with regard to operation as they now promise to be. Labor shortages are common. Automobile parts manufacturers still are urging shipments on contracts and among sheet makers the general belief is that the Ford suspension will not be as complete as was announced by Mr. Ford recently. Prices are given on page 627.

**Tin Plate.**—Demand is fairly brisk, but is putting no strain upon production and prices show no change. The movement toward an advance to a base of \$5 has not crystallized, but it is still talked about on account of increased producing costs. Stock tin plate is available at \$4.50 per base box.

**Steel Skelp.**—Available tonnages are so small that business necessarily is limited. It is doubtful whether independent makers would consider less than 2.50c. and some probably would ask 2.50c. So far as it is able, the Corporation is taking business at 2c.

**Track Equipment.**—There has been no further change in spikes, but track bolts have advanced to a minimum of \$3.75, base, per 100 lb. Pittsburgh. As high as \$4.50 is quoted by some makers, but these makers for some time past have not charged the usual extra of 1c. per lb. over the carload base for less car-



loads. On carload lots of a size \$3.75 still can be done. The general quotation on tie plates is \$45 per net ton, the most recent business was 400 tons placed by Pennsylvania Railroad with a local maker at \$39 per net ton. Prices are given on page 627.

**Steel Rails.**—Shortage of steel makes for a firm market, with light rails rolled from new steel not available at less than 2c., and some makers are asking 2.25c. on shipments from stock. Those rolled from old rails are priced at 1.90c. to 2c.

We quote 25 to 45-lb. sections, rolled from new steel, 2c. base; rolled from old rails, 1.90c. to 2c. base; standard rails, \$40 per gross ton mill for Bessemer and open-hearth sections.

**Iron and Steel Pipe.**—The general situation is without material change. All makers of steel pipe still are about 90 days behind their orders for butt welded pipe, but on the lap welded lines are not nearly so heavily committed. A recent inquiry for 30 miles of 8-in., 29-lb. line pipe has been withdrawn, as the company seeking this line was able to pick up a good second-hand line. Wrought iron pipe is not selling freely at the recent advance in prices. Discounts are given on page 627.

**Boiler Tubes.**—Liberal orders recently placed for locomotives point to continue good demand for boiler tubes, particularly for seamless steel tubes. The recent advance in prices is well observed on new business. Discounts are given on page 627.

**Wire Rods.**—Available supplies are confined solely to such tonnages as makers are unable to use in their own mills, owing to a shortage of wire drawers. One company here which has a small surplus as a result of this condition is offering it at \$47.50 base, Pittsburgh. This price has not yet been obtained, but it is doubtful whether supplies can be had at any less since most other makers still are out of the market.

We quote No. 5 common basic or Bessemer rods to domestic consumers, \$45 to \$47.50; chain rods, \$45 to \$47.50; screw stock rods, \$50 to \$52.50; rivet and bolt rods and other rods of that character, \$45 to \$47.50; high carbon rods, \$52 to \$57.50, depending on carbon, per gross ton, f.o.b. Pittsburgh or Youngstown.

**Wire Products.**—Buyers still are finding it difficult to enter orders for early delivery and quite as difficult to interest manufacturers in fourth quarter business. This condition is explained by the fact that practically all producers have obligations which will tax productive capacity for some time to come, owing to labor shortages while lately a scarcity of box cars has been backing up shipments. These manufacturers remain out of the market and the one company which has not formally withdrawn is not accepting business in excess of the regular requirements of its customers. A further advance in prices is probable because it is claimed that present prices do not allow a fair profit in view of the recent wage increase. Some companies state that when they come back into the market, it will be on a basis of \$2.75 per keg for nails and \$2.50 per 100 lb. for plain wire. The advance in wire products from the low point has been small by comparison with that in other steel products, but it is also a fact that wire products did not sustain as heavy a drop from the 1921 peak prices as did the other products. Prices are given on page 627.

**Cold-Rolled Strips.**—Demand holds good in the face of the recent advance, chiefly because the automobile makers are heavily committed and are getting few, if any, cancellations. For fourth quarter shipment, which is about as promptly as makers now can make deliveries, the market is at 4.25c., base Pittsburgh.

**Coke and Coal.**—Bee Hive oven coke production is not increasing much because many miners and oven operatives in the Connellsville district still are holding out for recognition of the union as a condition of their return to work. It is doubtful whether any of the operators is getting much in excess of 50 per cent production and many are well below that rate. Prices are unchanged with furnace grade quotable from \$10 to \$11 per ton at ovens based on sales to blast furnaces while foundry fuel commands anywhere from \$12 to \$14, depending on quality. It is reported that furnace coke has been sold to replace anthracite coal at \$11 to \$12 but that is well above what furnace operators lately have paid or will pay at today's prices of

pig iron. The coal market is soft and hardly quotable above \$5 per net ton at mines. We note sales of several large lots of gas coal at that figure. Production of coal in this district is gaining more rapidly than the demand and priority distribution rules are not yet very effective.

**Old Material.**—Dealers, confident that much higher prices are immediately ahead and that the railroads will not be in position to press material upon the market, are bidding high against railroad scrap lists. The steel scrap offered by the Pennsylvania Railroad, Central Region, sold at \$17.25 to \$17.30 per net ton, or \$19.32 to \$19.37 per gross ton, almost \$1 per ton above the highest price paid or offered by any of the steel companies in this district, and almost \$2 per ton above what one large Pittsburgh independent is bidding. So far, mills in this district have not increased their price ideas, but Youngstown and Canton are taking on tonnages at higher prices than prevail here and with the market also stronger East, it is hard to figure how Pittsburgh mills can escape paying the advance. Another argument in favor of higher prices is the unusually big premium on pig iron over scrap iron. The Pennsylvania Railroad, Central Region, list contained 5800 net tons, the Southwestern Region list 1900 net tons and the Eastern Region list approximately 19,000 net tons. A good many cast iron car wheels lately have been bought for Warren, Ohio, delivery, at \$22 per gross ton delivered.

We quote for delivery to consumers' mills in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

	Per Gross Ton
Heavy melting steel, railroad or equivalent	\$18.50
Heavy melting steel, ordinary	17.50
No. 1 cast, cupola size	\$19.00 to 19.50
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va.; Franklin, and Williamsport, Pa.	18.50 to 19.00
Compressed sheet steel	16.50
Bundled sheet sides and ends	15.50
Railroad knuckles and couplers	19.00 to 19.50
Railroad coil and leaf springs	19.00 to 19.50
Low phosphorus standard bloom and billet ends	23.00 to 24.00
Low phosphorus, plates and other grades	21.00 to 22.00
Railroad malleable	17.00 to 17.50
Iron car axles	27.00 to 28.00
Locomotive axles, steel	25.00 to 26.00
Steel car axles	20.00 to 20.50
Cast iron wheels	21.50 to 22.00
Rolled steel wheels	20.00 to 21.00
Machine shop turnings	14.50 to 15.00
Heavy steel axle turnings	16.50 to 17.00
Short shoveling turnings	16.00 to 16.50
Cast iron borings	17.00 to 17.50
Heavy breakable cast	18.50 to 19.00
Stove plate	15.50 to 16.00
Sheet bar crop ends	23.00 to 23.50
No. 1 railroad wrought	16.00 to 16.50

## Judge Gary Returns—Expresses Optimistic Views on Conditions

Judge Elbert H. Gary, chairman United States Steel Corporation, accompanied by Mrs. Gary, returned to New York Thursday after a pleasant sojourn of about a month at Colorado Springs, Col. He was interviewed at Chicago last Wednesday and took an optimistic view of business conditions. He said that throughout the West there seemed to be a general feeling that business activities were increasing and that great prosperity would be witnessed whenever conditions relating to transportation and production would permit. "I think," he said, "there is still a great deal of profiteering in business, such as in building materials and in some trades as well." He said he looked upon the reported action of the Ford Motor Co. as simply a protest against paying extortionate prices.

"For the last two years at least," said Judge Gary, "the people of this country in increasing numbers have withheld purchases to supply their necessities because of the unconscionable selling prices which have been demanded. The inexorable law of supply and demand ultimately will bring about adjustments concerning prices and remuneration which are just and equitable. There is nothing the matter with this country. Opportunities here are greater than ever before. The fault is in individuals.

"It behooves every one of us to make certain we are doing the right thing up to the limit of our intelligence and moral courage."

## Chicago

### Railroad Buying Gives Promise of Much Activity—Pig Iron Prices Higher

CHICAGO, Sept. 5.—The undiminished buoyancy of business after months of strike conditions has strengthened the faith of the trade in the future. Purchases of steel for indefinite delivery are slightly above the average for August and for an important local mill that month was an improvement over July in orders booked. With the market so active under handicaps, it is felt that now that the coal mines are producing again, the only remaining step necessary to usher in a sustained period of heavy buying is a settlement of the shopmen's strike. Even now the railroads are indicating that their purchases this fall will be very liberal. One line has placed 9000 tons of plates, shapes and bars to be used on car repairs and other roads are preparing to buy material for the same purpose. Orders for 300,000 tons of rails for next year await only the announcement of the 1923 mill prices. Purchases of track fastenings are in increasing volume, one order alone calling for 15,000 tons of tie plates. Renewed interest is also manifested in bridge material. Whereas, the carriers rarely place large orders for bridge steel except at the beginning of the year, one large road has entered the market for 1500 tons of girder spans to be used at 25 different locations.

Prices for indefinite shipment remain unchanged, but the market level on material for specified delivery has clarified with the appearance of quotations of 2.10c., Chicago, on soft steel bars, 2.25c., Chicago, on structural shapes and 2.30c., Chicago, on tank plates. The advance in bolts and nuts forecast a week ago amounts to approximately 10 per cent.

The operating situation in this district is unaltered, but the next change will probably be for the better. Fresh supplies of coal, however, are arriving very slowly and steel works are conserving their stocks by using oil for operations to which it is adapted.

**Ferroalloys.**—The market is quiet in all of the ferroalloys. Prices are unchanged, although owing to the increasing difficulty of getting rail shipments through from New Orleans, some recent consignments of ferromanganese have been handled through Baltimore.

We quote 78 to 82 per cent ferromanganese, future, \$75.06; prompt, \$82.56, delivered; 50 per cent ferrosilicon, \$55 delivered on contract and \$57 prompt delivery; spiegel-eisen, 18 to 22 per cent, \$47 to \$49, delivered.

**Pig Iron.**—Local iron has again advanced, this time to \$32, base furnace. Inquiry for forward delivery has fallen off, as is generally the case immediately after an advance, but demand for spot iron is unabated. Among current inquiries for prompt delivery is one for 500 tons of malleable. Local producers are being subjected to increasing pressure for iron by consumers in other territories where blast furnace output has practically ceased and furnace stocks have been exhausted. Because of the desperate situation in those sections, a number of small tonnages have been sold for shipment from Chicago district stacks, the freight from Chicago to certain destinations in Ohio running up to over \$4.25 a ton. The heavy sales of foreign pig iron in the East have given rise to speculation whether local prices will advance sufficiently above the present level to bring European competition into this district. There have been several occasions within the memory of the local trade when shipments of British iron have reached Chicago. Southern competition is temporarily at least practically non-existent because of the railroad embargoes which block shipments from the furnaces to points in this territory. Southern quotations, however, are stiffer, \$25 base, Birmingham, being the minimum with a dollar differential for each added 0.50 per cent of silicon. A sale of 250 tons of charcoal for third and fourth quarter shipments has been made at \$33 base furnace. In view of the fact that local coke iron is now up to \$32, furnace, another advance in charcoal is looked for. Low phosphorous iron is in an exceedingly strong position because of

lack of production and rapid depletion of furnace stocks. An inquiry for 500 tons of low phosphorous for delivery within 60 days is before the trade. Silvery is in a similar position, and while one furnace is still quoting \$37.50 f. o. b. Jackson on 8 per cent, all sales subject to confirmation, another Jackson County furnace is quoting \$4 higher.

Quotations on Northern foundry, high phosphorous malleable and basic irons are f.o.b. local furnace and do not include a switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards, or when so indicated, f.o.b. furnace other than local.

Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago.....	\$36.15
Northern coke, No. 1, sil. 2.25 to 2.75.....	33.00
Northern coke, foundry, No. 2, sil. 1.75 to 2.25.....	32.00
Northern high phos.....	32.00
Southern No. 2.....	\$31.00 to 32.00
Malleable, not over 2.25 sil.....	32.00
Basic.....	32.00
Low phos., Valley furnace, sil. 1 to 2 per cent copper free.....	38.00
Silvery, sil. 8 per cent.....	42.29

**Plates.**—Buying of railroad cars and oil storage tanks has fallen off for the time being, but demand on the mills for plates is still heavy. The railroads are expected to place liberal orders for steel this fall for car repairs. One road alone recently closed for 9000 tons of plates, shapes and bars to be used for the rehabilitation of equipment. For indefinite delivery the minimum quotation on tank plates remains 2.05c., Chicago, while for relatively early shipment the best local price is 2.30c. The leading independent is allocating its fourth quarter tonnage and is accepting no orders unaccompanied by specifications.

The mill quotation is 2.05c. to 2.50c., Chicago. Jobbers quote 2.90c. for plates out of stock.

**Cast Iron Pipe.**—La Porte, Ind., will open bids on 1750 tons of 18-in. Class C pipe on Sept. 11. Eloise, Mich., has taken tenders on 1230 tons of 12-in., but has not yet made an award. Detroit, likewise, has failed to make a decision on 800 tons on which bids were taken three weeks ago. The explanation appears to lie in the fact that pipe shops are unable to give the deliveries desired. Hinsdale, Ill., will soon take bids on 585 tons of 12-in. and 10-in. While most makers are now firm on a base of \$40, Birmingham, for 6-in. and larger, at least one pipe producer is still quoting \$38.50.

We quote per net ton, f.o.b. Chicago, as follows: Water pipe, 4-in., \$50.70 to \$52.20; 6-in. and above, \$46.70 to \$48.20; class A and gas pipe, \$3 extra.

**Wire Products.**—Demand is heavy for all forms of wire products, not excepting barbed wire. Two large orders for the latter material from the Northwest are apparently in anticipation of fall fencing work. Mill operations have not improved. For mill prices, see Finished Iron and Steel, f.o.b. Pittsburgh, page 627.

We quote warehouse prices, f.o.b. Chicago: No. 9 and heavier black annealed wire and No. 9 and heavier bright basic wire, \$3.20 per 100 lb.; common wire nails, \$3.35 per 100 lb.; cement coated nails, \$2.75 per keg.

**Bolts and Nuts.**—Following advances in raw material, bolt, nut and rivet makers have increased their prices approximately 10 per cent. New discounts as announced up to date will be found on page 627, but the basing point is Chicago.

No changes have been announced in the discounts of plow bolts and stove bolts and it is probable that they will remain the same. Prices are f.o.b. Chicago. Buyers are specifying heavily against their contracts to get the benefit of the lower prices. At the same time new business is being closed at the revised figures.

Jobbers quote structural rivets, 3.50c.; boiler rivets, 3.60c.; machine bolts up to 3/4 x 4 in., 50, 10 and 10 per cent off; larger sizes, 50 and 10 off; carriage bolts up to 3/4 x 6 in., 50 and 5 off; larger sizes, 45 off; hot pressed nuts, squares and hexagons, tapped, \$3.25 off; blank nuts, \$3.50 off; coach or lag screws, gimlet points, square heads, 60 per cent off; quantity extras are unchanged.

**Reinforcing Bars.**—Sellers continue to accept orders cautiously although they are being pressed to take a multiplicity of small tonnages. At the same time new projects of more than 100 tons are fewer. Awards include:

Nurses' home, Chicago, Wm. Carnegie, general contractor, 100 tons to Paul J. Kalman Co.  
School, Mankato, Minn., 180 tons to Concrete Steel Co.  
Neely Printing Co. plant, Chicago, 100 tons to Corrugated Bar Co.

Pending work includes:

Hanes Hotel, Chicago, 225 tons.



**Sheets.**—The Inland Steel Co. has opened its books for fourth quarter at the same prices as were previously announced by the leading producer. Tonnage will be allocated among customers. Demand is insistent and is coming from all parts of the country as well as from abroad, indicating a pronounced scarcity of material.

Mill quotations are 3.35c. to 3.50c. for No. 28 black, 2.50c. to 2.60c. for No. 10 blue annealed and 4.35c. to 4.50c. for No. 28 galvanized, all being Pittsburgh prices, subject to a freight rate to Chicago of 34c. per 100 lb.

Jobbers quote blue annealed, 4c.; black, 4.85c.; galvanized, 5.85c.

**Bars.**—Demand for soft steel bars continues heavy, with 1.95c., Chicago, the minimum price for indefinite shipment and 2.10c., Chicago, the best quotation on material for specific delivery. As high as 2.50c., Chicago, is being paid for prompt shipment. Demand for bar iron is not so active, but prices are firm at a minimum of 2.25c., Chicago, with some business going at as high as 2.50c., Chicago. Buying of hard steel bars is sustained, although not spectacular, and prices are unchanged.

Mill prices are: Mild steel bars, 1.95c. to 2.50c., Chicago; common bar iron, 2.25c. to 2.50c., Chicago; rail steel, 2c. to 2.005c., Chicago.

Jobbers quote 2.80c. for steel bars out of warehouse. The warehouse quotation on cold-rolled steel bars and shafting is 3.80c. for rounds and 4.30c. for flats, squares and hexagons. Jobbers quote hard and medium deformed steel bars at 2.50c. base; hoops, 3.90c.; bands, 3.55c.

**Rails and Track Supplies.**—Fully 300,000 tons of rails for 1923 delivery will be placed as soon as a price for next year is announced. Of this tonnage, from 125,000 to 200,000 tons will be placed by the New York Central. Other pending lots include two of 40,000 tons each, one of 20,000 tons, one of 10,000 tons and another of 6000 tons. Track fastening business is in satisfactory volume. A single order for 15,000 tons of tie plates is the largest placed in this district for a considerable period, if not the largest on record. There has been a marked improvement in inquiry for light rails since the settlement of the coal strike.

Standard Bessemer and open-hearth rails, \$40; light rails rolled from new steel, 2c. to 2.25c., f.o.b. makers' mills.

Standard railroad spikes, 2.75c. to 3c., mill; track bolts with square nuts, 3.75c. to 4c., mill; tie plates, steel and iron, 2.15c. to 2.25c., f.o.b. mill; angle bars, 2.40c., f.o.b. mill. Jobbers quote standard spikes out of warehouse at 3.50c. base and track bolts 4.50c. base.

**Structural Material.**—Sustained building activity is indicated by numerous fresh fabricating awards. The taking of new business is restricted, however, by slow deliveries from the mills. In fact, fabricators are experiencing difficulty in obtaining shipments from the mills on present orders. Plain material continues to command a minimum of 2.05c., Chicago, for indefinite delivery, while the lowest quotation on reasonably early delivery is 2.20c., Chicago. The leading independent is allocating its fourth quarter production and is taking no orders unaccompanied by specifications.

The mill quotation on plain material is 2.05c. to 2.45c., Chicago. Jobbers quote 2.90c. for plain material out of warehouse.

**Coke.**—Local by-product foundry has advanced to \$15, delivered in the Chicago switching district. Connellsville foundry is weaker at \$12, ovens, but is difficult to obtain because of the transportation situation. The same trouble is incurred in connection with shipments from other outside producing centers.

**Steel Castings.**—An early announcement of advanced prices effective Oct. 1 is acknowledged. It is probable advances will apply particularly to certain classes of castings which are now relatively low, such as car castings in large quantities. Others may be advanced little, if at all.

**Old Material.**—Not only are the railroads offering few new lists, but they are slow in making deliveries against old sales and in some instances have tried to cancel unfilled contracts. As a result, sellers are short of scrap with which to fulfill their obligations with users and are bidding against each other for what little material is on the market. In one extreme instance, a dealer was forced to pay \$9 a ton above his selling price in order to fill an old order. At the same time, users are paying steadily increasing prices on their new purchases. Prices are exceedingly strong and it is diffi-

cult to ascertain the true level of the market because what is being paid depends upon how badly the buyer needs the material. With scrap generally scarce, there is considerable variation in the prices governing current transactions. A conservative estimate, however, would place present quotations at from 50c. to \$1 a ton or more above those of last week. An interesting development lies in that fact that prices on No. 2 wrought, which were practically identical with those on heavy melting when purchases by the steel works dominated the market, have risen above that level on a strong iron mill demand. Scrap prices are still generally low in comparison with pig iron and further advances are regarded as inevitable in view of the improbability of important railroad offerings while the carriers are concentrating on the movement of coal and grain. The Michigan Central and the New York Central offer blind lists.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Iron rails	\$20.50 to \$21.00
Cast iron car wheels	22.50 to 23.00
Relaying rails	25.00 to 30.00
Rolled or forged steel car wheels	22.00 to 22.50
Rails for rolling	18.50 to 19.00
Steel rails, less than 3 ft.	21.00 to 21.50
Heavy melting steel	17.50 to 18.00
Frogs, switches and guards cut apart	17.50 to 18.00
Shoveling steel	17.25 to 17.75
Drop forge flashings	12.50 to 13.00
Hydraulic compressed sheet	14.00 to 14.50
Axle turnings	15.00 to 15.50
Per Net Ton	
Iron angles and splice bars	21.50 to 22.00
Steel angle bars	17.50 to 18.00
Iron arch bars and transoms	21.50 to 22.00
Iron car axles	24.00 to 24.50
Steel car axles	18.50 to 19.00
No. 1 busheling	14.50 to 15.00
No. 2 busheling	9.00 to 9.50
Cut forge	16.50 to 17.00
Pipes and flues	12.50 to 13.00
No. 1 railroad wrought	17.50 to 18.00
No. 2 railroad wrought	16.50 to 17.00
Steel knuckles and couplers	19.00 to 19.50
Coil springs	20.50 to 21.00
No. 1 machinery cast	21.50 to 22.00
No. 1 railroad cast	19.00 to 19.50
Low phos. punchings	16.50 to 17.00
Locomotive tires, smooth	15.50 to 16.00
Machine shop turnings	10.00 to 10.50
Cast borings	12.50 to 13.00
Stove plate	17.00 to 17.50
Grate bars	17.00 to 17.50
Brake shoes	17.00 to 17.50
Railroad malleable	19.50 to 20.00
Agricultural malleable	19.50 to 20.00

Arthur G. McKee & Co., Cleveland, have been awarded a contract by the Rochester & Pittsburgh Coal & Iron Co. for designing and installing a new trestle and storage bins at the plant of the Adrian Furnace Co., Dubois, Pa. The improvements will include a steel and reinforced concrete trestle structure, approximately 480 ft. long, six ore bins, coke bin and coke breeze handling equipment. The coke bin will be centrally located, discharging direct over Cascade type screens into the skip cars, and will provide storage for approximately 135 tons of coke. Two 80 cu. ft. capacity scale cars will be furnished for handling materials from the ore and limestone bins. Arthur G. McKee & Co. have also taken a contract from the Cambria Steel Co. for designing and furnishing materials for a furnace top for one of its Johnstown, Pa., stacks. The order includes a McKee revolving distributor and auxiliary top equipment.

At a recent meeting of tube department foremen of the Youngstown Sheet & Tube Co., Youngstown, Ohio, three employees were awarded safety fobs for having shown extraordinary quickness of thought and action resulting in saving a fellow workman from serious injury or death. Samuel P. Finch, turn foreman, received a gold fob for having pulled a fellow employee from the welding rolls pit, into which he had fallen in trying to assist in rolling a tube from the welding table. Two other employees received silver fobs. Since 1914 the company has awarded 18 gold fobs. James M. Woltz, safety director, made the presentations.

## New York

### Readjustment Proceeds Slowly — Moderate Rates of Foreign Pig Iron

NEW YORK, Sept. 5.—It is evident that readjustment following the partial settlement of the coal miners' strikes will not be easily or quickly made and it does not seem probable that the production of pig iron in the East will be materially increased for a month or two. While some shippers report that they are getting excellent service from the railroads, others, particularly those shipping to New England, report very slow movement owing to crippled equipment. Some furnaces, which still have iron, sold at \$18 to \$20 to deliver will hesitate about going into blast until costs can be materially reduced. Some of these furnaces had contracts for coke at \$4 which they did not receive, and were compelled to buy coke at \$10, or even higher prices, before blowing out.

**Pig Iron.**—Moderate inquiry has come from various interests in this district, including one for 1500 tons No. 2 plain from a New England stove manufacturer and 1000 tons of No. 2X from a house furnace manufacturer for prompt delivery. The latter is understood to have bought 250 tons of foreign iron on this inquiry. A coupler company is in the market for from 1000 to 2000 tons of malleable. Prices have again become advanced \$1, and \$34 Eastern furnace is now apparently the minimum for No. 2 plain. Southern iron orders can be placed at \$25, but deliveries are unsatisfactory. Some Southern iron sold several weeks ago has been on the road for two or three weeks, with no definite promise of reaching its destination. Foreign iron is being sold in moderate quantities, but is becoming increasingly difficult to obtain for early delivery. No Scotch iron can be bought abroad to be shipped before Nov. 1, but there is still a limited quantity on the ocean or in the hands of importers in this country. Prices on Scotch equivalent No. 2X range from \$30 to \$32. On French, Belgian and Luxemburg irons running rather high in phosphorus and analyzing 2.50 to 3 per cent silicon, prices range from \$26.50 to \$28, c.i.f. New York. A limited tonnage of German iron is being offered, but it is low in silicon and high in sulphur and is not at all attractive.

We quote delivered in the New York district as follows, having added to furnace prices \$2.27 freight from eastern Pennsylvania, \$4.91 from Buffalo and \$5.44 from Virginia:

East. Pa. No. 1 fdy., sil. 2.75 to 3.25...	\$38.27
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	37.27
East. Pa. No. 2 fdy., sil. 1.75 to 2.25...	36.27
Buffalo, sil. 1.75 to 2.25.....	\$37.91 to 38.91
No. 2 Virginia, sil. 1.75 to 2.25.....	No sales

**Finished Iron and Steel.**—Larger production of bituminous coal has resulted within the past week in better mill operations and a slight lessening of the restrictions which steel companies have been placing upon sales. One large independent, which has been out of the market almost entirely for several weeks, is now selling plates, shapes, bars, cold-finished bars and tin plate in limited quantities to its regular trade. Another large independent, for the first time in about two months, is allotting small tonnages to its district offices for distribution among regular customers who are in dire need. The Jones & Laughlin Steel Co., Pittsburgh, whose blast furnace operation got down to three active stacks, now has six in blast and this week will put on two more, having gotten fairly liberal supplies of coal within the past week by barge from its mines. Other steel companies which have non-union mines or those which are entirely dependent on railroads for transporting coal are not faring as well as they would like to, but their coal receipts are larger than a week or 10 days ago. There is a disposition in the trade to believe that the peak prices which have been reached on some of the heavier products, such as 2.50c., Pittsburgh, on plates, for example, will not last under the better operating conditions which the mills will now enjoy. One independent is offering bars and shapes at 2c., Pittsburgh, and plates at 2.25c. for fairly early shipment; another asks 2.25c. for all three products. In general, bars and shapes range from 2c. to

2.25c., plates from 2.10c. to 2.50c., with a majority of transactions at about 2.25c., Pittsburgh. Some makers of cold finished steel bars are quoting 2.50c. Bands are quoted at 3c., Pittsburgh, by at least one or two mills. Tin plate is now firm at \$4.75 per base box, with an advance predicted for the near future, this product not having gone up in keeping with other advances. In semi-finished steel, there is great strength and it is now almost impossible to buy billets, slabs or sheet bars under \$40, with wire rods strong at \$45, Pittsburgh. An Eastern mill has sold 6000 tons of soft steel billets for shipment to the Chicago district at a price which corresponds to \$42, Pittsburgh. A fair volume of business in structural steel continues to come into the market notwithstanding advanced prices on fabricated steel. Concrete reinforcing bars are in good demand, current inquiries aggregating several thousand tons, including one from the Lock Joint Pipe Co. for 3000 tons and others of 2000, 1350 and 1000 tons. The largest structural contract of the week involved 5000 tons for a hotel building in New York for the United Hotels Co., on which the New York Shipbuilding Corporation, a newcomer in structural steel work, was the successful bidder.

We quote for mill shipments, New York delivery, as follows: For indefinite delivery, soft steel bars, structural shapes and steel plates, 2.14c.; for delivery in a number of weeks, soft steel bars, plain structural material and steel plates, 2.34c. to 2.59c.; bar iron, 2.34c.

**Ferroalloys.**—Demand for ferromanganese has fallen off, due to the holiday and the strike situation, but a few sales of small lots, amounting to about 300 tons, are reported for October shipment at the regular quotation, all being British alloy. Offerings of domestic alloy are not heard of. Inquiries are light. Sales of the high grade spiegeleisen, amounting to 300 or 400 tons, were made last week at \$39, furnace, for early delivery. Practically none of the lower grade alloy is being offered. There are no reports of any activity in the manganese ore market and prices are nominal. Demand for 50 per cent ferrosilicon is moderate. One large American producer announces an advance in its price to \$65 per ton, delivered, as the minimum. The ferrochromium market is quiet and specifications on contract are fairly good. Quotations are as follows:

Ferromanganese, domestic, seaboard, per ton...	\$67.50
Ferromanganese, British, seaboard, per ton...	\$67.50
Spiegeleisen, 17 to 19 per cent, furnace.....	\$38.00
Spiegeleisen, 20 per cent, furnace.....	\$39.00
Ferrosilicon, 50 per cent, delivered, per gross ton, carloads.....	\$55.00 to \$60.00
Ferrosilicon, 10 to 15 per cent, delivered, per gross ton.....	\$38.00 to \$40.00
Ferrotungsten, per lb. of contained metal, 40c. to 50c.	
Ferrochromium, 4 to 8 per cent carbon, 60 to 70 per cent Cr., per lb. Cr., delivered.....	12c. to 14c.
Ferrovanadium, per lb. of contained vanadium.....	\$3.00 to \$3.50
Ferrocobalt, 15 to 18 per cent, in carloads, per net ton.....	\$200.00

#### Ores

Manganese ore, foreign, per unit, seaboard.....	28c. to 30c.
Tungsten ore, per unit, in 60 per cent concentrates, nominal.....	\$3.00 up
Chrome ore, basis 48 per cent Cr <sub>2</sub> O <sub>3</sub> , crude, per ton, Atlantic seaboard.....	\$15 to \$18.50
Molybdenum ore, 85 per cent concentrates, per lb. of MoS <sub>2</sub> , New York.....	42.50c. to 45c.

**Cast-Iron Pipe.**—Business is good, demand continuing strong. Among municipal tenders, upon which pipe makers are now bidding, opening Sept. 9, there is one calling for 450 tons of 8-in. pipe from Voorheesville, N. Y., one for 200 tons of 16-in. and 18-in. pipe from Rye, N. Y., and 50 tons of 6-in. pipe from Attleboro, Mass. We quote per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, \$54.50; 4-in. and 5-in., \$59; 3-in., \$64.80, with \$4 additional for Class A and gas pipe.

**High-Speed Steel.**—The market is unchanged and producers continue to quote 18 per cent tungsten high-speed steel at 75c. per lb., base, with special brands of some companies ranging up to 90c. per lb.

**Warehouse Business.**—Effective Sept. 5, a number of the warehouses in this district and the leading independent increased prices on black and galvanized sheets from 4.60c. per lb. and 5.60c. per lb. base to 4.90c. and 5.90c. per lb., while blue annealed sheets were raised from 4.04c. per lb., the price set recently, to 4.19c. per lb., base. Other factors in the sheet business here,



however, are quoting 4.75c. and 5.75c. per lb., base, on black and galvanized respectively. Bars, shapes and plates are unchanged, but hoops have been increased by most warehouses to 4.29c. per lb., base. Cold-rolled shafting and screw stock has again been advanced by 50c. per 100 lb., and is now quoted at 3.90c. per lb. for rounds and 4.40c. for squares, flats and hexagons. Cold-rolled strip steel is now on a basis of 6.75c. per lb. Brass and copper warehouses report an advance in price on copper products of 1c. per lb. and on brass of 1/2c. per lb. Business in this line is good, consumers of all kinds having come into the market. Manufacturers of radio equipment are reported as again active. We quote prices on page 644.

**Coke.**—The coke market is somewhat easier, but deliveries are not satisfactory. Furnace coke is quoted at \$10.50 to \$12 Connellsville ovens and foundry \$13.50 to \$14.50. By-product is quoted at \$14, seaboard, and the fuel administrator is still requiring that a large percentage be sent to public utility corporations. The outlook is that prices of coke will be high for a long time.

**Old Material.**—The market continues active and prices still show an upward tendency. Heavy melting steel is quotable at \$11.50 to \$12 per ton. Buying is noted from Wierton, Lebanon, Bethlehem and Alan Wood. While mills are undoubtedly in need of scrap, there is said to be a feeling that prices are rising to too high a level. Bethlehem is paying \$15.50 for No. 1 heavy melting steel and on mixed borings and turnings Wierton will pay \$15.25 per ton. Most of the steel now moving from this district is going either to Bethlehem or is being shipped by barge to Buffalo. No. 1 yard wrought is quotable this week at \$11.50 to \$12.50, machine shop turnings at \$10.25 to \$10.75 and specification pipe at \$10.25 to \$10.75.

Buying prices per gross ton, New York, follow:

Heavy melting steel, yard.....	\$11.50 to \$12.00
Steel rails, short lengths, or equivalent	12.25 to 12.75
Rerolling rails.....	12.50 to 13.00
Relaying rails, nominal.....	27.00 to 28.00
Steel car axles.....	17.00 to 18.00
Iron car axles.....	23.00 to 24.00
No. 1 railroad wrought.....	13.50 to 14.00
Wrought iron track.....	12.25 to 12.75
Forge fire.....	8.00 to 8.50
No. 1 yard wrought, long.....	11.50 to 12.50
Cast borings (clean).....	10.75 to 11.25
Machine-shop turnings.....	10.25 to 10.75
Mixed borings and turnings.....	10.25 to 10.75
Iron and steel pipe (1 in. diam., not under 2 ft. long).....	10.25 to 10.75
Stove plate.....	11.25 to 11.75
Locomotive grate bars.....	11.50 to 12.00
Malleable cast (railroad).....	11.00 to 11.50
Cast-iron car wheels.....	13.50 to 14.00

Prices which dealers in New York and Brooklyn are quoting to local foundries, per gross ton, follow:

No. 1 machinery cast.....	\$18.50 to \$19.50
No. 1 heavy cast (columns, building materials, etc.), cupola size.....	16.50 to 17.00
No. 1 heavy cast, not cupola size.....	14.00 to 14.50
No. 2 cast (radiators, cast boilers, etc.).....	12.00 to 12.50

## Buffalo

BUFFALO, Sept. 5.

**Pig Iron.**—None of the Buffalo sellers is rushed with business and orders placed here are for carload lots and tonnages slightly in excess of that quota. One furnace is quoting \$34 base and another \$35 and they sell for immediate delivery only. Imported iron being bought in the Eastern territory has impaired demand for Buffalo iron. Coal is a little easier and one interest expects to start a furnace recently banked. The market is without feature.

We quote f.o.b. per gross ton Buffalo as follows, the higher prices being for early shipment:

No. 1 foundry, 2.75 to 3.25 sil.....	\$35.00 to \$36.00
No. 2X foundry, 2.25 to 2.75 sil.....	34.00 to 35.00
No. 2 plain, 1.75 to 2.25 sil.....	34.00 to 34.50
Basic.....	30.00
Malleable.....	36.00
Lake Superior charcoal.....	36.25

**Finished Iron and Steel.**—The return to the selling field of the local branch of a large independent and the fact that coal is slightly easier to obtain have created a little more activity in this district. This seller is again quoting on structural shapes and plates after weeks of inactivity, and ability to quote on bar business is expected. The quotations are 2c. on shapes and 2.25c. on plates. The Steel Corporation subsidiary is quoting

1.90c. on bars and 2c. on plates. The largest local independent is advancing its minimum price on bars to 2.25c. from the 2.15c. base. Cold-finished material is in big demand; a price of 2.50c. is expected to be reached in September. Considerable business in all materials is awaiting placement and the general situation is brighter. A shortage of labor and the growing dearth of cars are matters of reckoning for the near future. Sheet prices are on the upward trend. Structural awards are for small quantities and the aggregate tonnage is fairly large, but no important jobs are expected this year.

**Warehouse.**—Especially heavy demand for all products appears from all corners and another advance in price has been made. The call for structural shapes is exceptionally heavy and transcends the demand for all other products.

We quote warehouse prices, Buffalo, as follows: Structural shapes, 3.10c.; plates, 2.90c.; soft steel bars, 3c.; hoops, 4c.; bands, 3.80c.; blue annealed sheets, No. 10 gage, 3.90c.; galvanized steel sheets, No. 28 gage, 5.85c.; black sheets, No. 28, 4.85c.; cold rolled round shafting, 3.95c.

**Old Material.**—With heavy melting steel firm at \$17 to \$17.25, mills are buying various sized tonnages, but there is a scarcity of big sized tonnages. The demand for machine shop turnings outside the district is good and there is generally a better feeling all around. The car situation is steadily growing serious and the shortage is expected to become acute with the settlement of coal and railroad strikes. These settlements will, in the opinion of dealers, bring about a complete withdrawal of gondola cars for the transportation of old material.

We quote dealers' asking prices per gross ton f.o.b. Buffalo as follows:

Heavy melting steel.....	\$17.00 to \$17.25
Low phos., 0.04 and under.....	18.00 to 19.00
No. 1 railroad wrought.....	16.00 to 16.50
Car wheels.....	19.50 to 20.50
Machine shop turnings.....	10.50 to 11.00
Cast iron borings.....	14.00 to 14.50
Heavy axle turnings.....	14.00 to 14.50
Grate bars.....	14.00 to 14.50
No. 1 busheling.....	15.00 to 15.50
Stove plate.....	15.00 to 15.50
Bundled sheet stampings.....	11.50 to 12.00
No. 1 machinery cast.....	19.50 to 20.50
Hydraulic compressed.....	15.00 to 15.50
Railroad malleable.....	19.50 to 20.50

## St. Louis

### Large Stove Plants Close on Account of Pig Iron Shortage

St. Louis, Sept. 5.—The question of getting pig iron is becoming more and more a serious problem with melters in the St. Louis district, two of the largest stove foundries and a job foundry closing down within the last week because of a lack of iron. One of the stove plants expects to resume operations shortly. Between the shortage in coal and the rail situation there is very little pig iron to be had or that can be moved. A Sheffield maker has been shipping some pig iron by rail and water, sales last week amounting to 1000 tons, but no other iron of any consequential tonnage is coming through from the South. The northern makers are in a bad way for coal, and are well booked up with orders. The Granite City maker sold 1000 tons of foundry iron during the week, some of it to distant points, and negotiations now are on for the sale of 1000 tons of foundry grades to an Eastern melter. The same maker also sold a considerable tonnage of low-silicon iron at a good price. The market is around \$32 Chicago for Northern iron for spot shipment, while Southern iron is quoted around \$23 to \$25 Birmingham. The Sheffield maker, which has been making water and rail shipments, is now out of the market.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices \$2.16 freight from Chicago and \$5.17 from Birmingham and 81 cents average switching charge from Granite City:

Northern foundry, sil. 1.75 to 2.25..	\$32.16
Northern malleable, sil. 1.75 to 2.25..	32.16
Basic.....	32.16
Southern foundry, all rail, sil. 1.75 to 2.25.....	\$27.17 to 29.17

**Finished Iron and Steel.**—The week was featured by a renewal of interest in steel by the railroads. The principal inquiry came from the Wabash, which wants 20,000 tons of 90-lb. rails, together with the necessary

splice bars and track bolts. The Missouri Pacific has an inquiry for its requirements for spring steel for the remainder of the year. A car manufacturer has asked for quotations on 2400 wheels for 300 gondola cars to be built by the Cincinnati, Indiana & Western. Interest also is being shown in the wheel requirements for the 55 locomotives to be built for the Missouri-Kansas-Texas Railway. A jobber bought 50 tons of spring steel during the week. Jobbers are showing very little interest in buying, a situation largely due to the conditions existing in the trade, as they believe it useless because of the scarcity of steel to make inquiries. Fabricators are endeavoring to make some purchases covering their immediate requirements, but they, too, realizing the conditions existing in the industry, are not showing much interest in the future. The principal letting of structural steel of the week was 650 tons for the plant of the Western Cartridge Co., East Alton, Ill., in the St. Louis industrial district, which went to the Mississippi Valley Structural Steel Co. There has been a good demand for sheets.

For stock out of warehouse we quote: Soft steel bars, 2.70c. per lb.; iron bars, 2.70c.; structural shapes, 2.80c.; tank plates, 2.80c.; No. 10 blue annealed sheets, 4.10c.; No. 28 black sheets, cold rolled, one pass, 4.85c.; cold drawn rounds, shafting and screw stock, 3.50c.; structural rivets, \$3.35 per 100 lb.; boiler rivets, \$3.45; tank rivets, 7/16 in. and smaller, 60 per cent off list; machine bolts, large, 50 and 10 per cent; small, 50-10 and 10 per cent; carriage bolts, large, 55-5 per cent; small, 60 and 10 per cent; lag screws, 60 per cent; hot pressed nuts, square or hexagon blank, \$3.50; and tapped, \$3.25 off list.

**Coke.**—The coke situation is very serious. But little relief has come so far as a result of settlements in the coal industry. The demand is increasing, and prices are steadily advancing. Connellsville coke is now quoted at \$15 at the ovens, while Chicago by-product coke has advanced \$1.50 a ton to \$15 furnace, while domes to grades have advanced \$1. Some Alabama coke is being sold, and a car is coming through now and then.

**Old Material.**—The market for old material continues steadily to advance. No material is coming in either from the country or from the railroads. The demand is heavy, and some of the mills are beginning to order for their winter requirements. Foundry grades are especially strong. Car wheels are strong and scarce. There also is a good demand for special steel grades. Relaying rails are being called for by coal mines and lumber mills.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Old iron rails.....	\$17.75 to \$18.75
Rails for rolling.....	18.00 to 18.50
Steel rails less than 3 ft.....	17.50 to 18.00
Relaying rails, standard section.....	26.00 to 29.00
Cast iron car wheels.....	21.00 to 21.50
No. 1 heavy railroad melting steel.....	17.50 to 18.00
No. 1 heavy shoveling steel.....	16.50 to 17.00
Ordinary shoveling steel.....	16.50 to 17.00
Frogs, switches and guards cut apart.....	16.50 to 17.00
Per Net Ton	
Heavy axle and tire turnings.....	11.50 to 12.00
Steel angle bars.....	15.75 to 16.25
Iron car axles.....	25.50 to 26.00
Steel car axles.....	19.00 to 19.50
Wrought iron bars and transoms.....	20.50 to 21.00
No. 1 railroad wrought.....	15.25 to 15.75
No. 2 railroad wrought.....	14.50 to 15.00
Railroad springs.....	18.50 to 19.00
Steel couplers and knuckles.....	18.50 to 19.00
Cast iron borings.....	11.00 to 11.50
No. 1 busheling.....	13.00 to 13.50
No. 1 railroad cast.....	19.00 to 19.50
Railroad malleable.....	15.50 to 16.00
Machine shop turnings.....	9.50 to 10.00

The Yawman & Erbe Mfg. Co., Rochester, N. Y., has placed a contract with the Cleveland Crane & Engineering Co., Cleveland, for an extensive overhead conveying system for handling cabinets through its assembling and painting departments to the shipping department. The system will include 54 one-ton carriers and electric elevators for dipping. This system will serve six baking ovens.

The Colorado Fuel & Iron Co. advanced wages of unskilled labor a little more than 21 per cent, effective Sept. 1. Common labor, which has been receiving 33c. an hour, has been increased to 40c. Advances for skilled labor will be announced later.

## Boston

### Sales of Foreign Iron Continue—Coke Sales Largely English

BOSTON, Sept. 5.—The intervening holiday had but slight influence on the demand for foreign iron in this territory the past week, sales again amounting to several thousand tons. Business in these irons is largely confined to Scotch and "Continental," the former being the more popular of the two kinds. "Continental" iron takes a wide range, \$25 to better than \$27 c.i.f. dock Boston for silicon \$2.50 plus, the price depending on phosphorous and manganese content. No. 3 Scotch iron sold at \$30 to \$32 c.i.f. Boston and No. 1 at \$31 to \$32, sales ranging from 1000 tons taken by a Massachusetts heater maker, to car lots. Small lots of No. 1 Scotch, part of a 3000 to 4000 ton cargo which arrived during the week, sold for spot shipment at \$34 dock. About the only Scotch iron available to-day is for October shipment. Sales of domestic iron are almost nil, because furnaces are unable to ship. A small tonnage of resale high manganese Buffalo sold at \$34 furnace, and No. 2X and No. 1X Alabama at prices having little bearing on the market because sales represented negotiations between foundries. Alabama iron at \$35 base, Providence, R. I., dock is still available. Eastern Pennsylvania iron is quoted higher, but little is taken by melters due to the comparative cheapness of foreign brands.

We quote delivered prices, on the basis of the latest reported sales, now infrequent, and as follows, having added to furnace prices \$3.65 freight from eastern Pennsylvania, \$4.91 from Buffalo, \$5.92 from Virginia and \$9.60 from Alabama:

East. Penn., sil. 2.25 to 2.75.....	\$38.15 to \$39.15
East. Penn., sil. 1.75 to 2.25.....	37.65 to 38.65
Buffalo, sil. 2.25 to 2.75.....	39.41 to 41.41
Buffalo, sil. 1.75 to 2.25.....	38.91 to 40.91
Alabama, sil. 2.25 to 2.75.....	35.10 to 38.10
Alabama, sil. 1.75 to 2.25.....	34.60 to 37.60

**Warehouse Business.**—Following the advance at other large distributing centers, local warehouse prices underwent two uplifts the past week, which in the aggregate ranged from 25c. to 50c. per 100 lb. on steel, the largest spread coming in open-hearth spring steel. Plates advanced 40c., blue annealed sheets 15c., and black and galvanized sheets 25c. per 100 lb. Norway iron remains unchanged, while refined iron is 25c. to 40c. higher. Stocks of small rounds and flats, concrete bars, bands and angles are still broken. The demand for iron and steel has been stimulated by the higher prices. Wire nails have gone up 20c. to 30c. per keg. Bolts, nuts, washers and rivets are moving in normal quantities.

Jobbers quote: Soft steel bars, \$3.25 per 100 lb. base; flats, \$3.85; concrete bars, \$3.25; structural steel, \$3.25 to \$3.50; tire steel, \$4.50 to \$4.85; open-hearth spring steel, \$5 to \$6.50; crucible spring steel, \$12; steel bands, \$4.25; hoop steel, \$4.75; cold rolled steel, \$4 to \$4.50; refined iron, \$3.25; best refined iron, \$4.50; Wayne iron, \$5.50; Norway iron, \$6 to \$6.50; plates, \$3.35 to \$3.55; No. 10 blue annealed sheets, \$4.15 per 100 lb. base; No. 28 black sheets, \$5.40; No. 28 galvanized sheets, \$6.40.

**Coke.**—Going business in foundry coke the past week centered largely in English brands to arrive and in Southern fuel, aggregate sales for consumption in this territory exceeding 3000 tons. Most of the English coke was taken on a basis of \$15 to \$16 c.i.f. local dock, while Southern brought \$19 delivered consuming point. The first cargo of the latter, 2500 tons, is due to arrive within 10 days and is sold. New York Interests are offering 1800 tons of English foundry coke in this territory at a little less than \$15 c.i.f. dock, that city. New England producers of by-product foundry coke for September are quoting \$16.50 delivered, where the local freight does not exceed \$3.10, for contract fuel, but remain out of the market for spot business. The New England Coal & Coke Co. is securing a much better supply of coals and therefore will be in a position shortly to make freer deliveries of foundry coke. This fact undoubtedly will have some bearing on the market for foreign coals.

**Old Material.**—The firmer feeling among yard interests, noted last week, since then has resulted in a



general marking up of old material used by mills. The higher prices are not based on any improvement in the demand for scrap, but on a growing belief that material will be scarce before the turn of the year. Present activity is confined largely to shipments against contracts previously made. Heavy melting steel values have not increased. On the other hand, those on railroad wrought, pipe, chemical borings, axles, wheels and rerolling rails are 50c. to \$1 a ton higher on the average, and in a few instances even more so. Forged scrap and bundled skeleton prices are on a par with those quoted on machine shop turnings and blast furnace borings and turnings. New England foundries are showing slightly more interest in machinery cast, and the market is firmer as a result. Round tonnage lots are limited, the largest sale made the past week being 200 tons at \$21.50 delivered. Stove plate also is wanted but prospective buyers and sellers are considerably apart in price.

The following prices are for gross ton lots delivered consuming points:

No. 1 machinery cast.....	\$20.00 to \$21.50
No. 2 machinery cast.....	13.00 to 19.00
Stove plate .....	15.00 to 16.00
Railroad malleable .....	16.50 to 17.00

The following prices are offered per gross ton lots f.o.b. Boston rate shipping points:

No. 1 heavy melting steel.....	\$11.50 to \$12.00
No. 1 railroad wrought.....	13.50 to 14.00
No. 1 yard wrought.....	11.50 to 12.00
Wrought pipe (1 in. in diameter, over 2 ft. long).....	9.00 to 9.25
Machine shop turnings.....	8.75 to 9.00
Cast iron borings, rolling mill.....	9.50 to 10.00
Cast iron borings, chemical.....	12.50 to 13.00
Blast furnace borings and turnings..	9.50 to 10.00
Forged scrap and bundled skeleton..	9.50 to 10.00
Street car axles.....	18.00 to 19.00
Street car wheels.....	15.00 to 15.50
Rerolling rails .....	12.50 to 13.00
Shafting .....	17.50 to 18.00

## Cincinnati

### Melters Not Inclined to Buy as Pig Iron Prices Continue to Advance

CINCINNATI, Sept. 5.—The proposed new pig iron rate from Birmingham to Ohio River crossings has been suspended until Dec. 31 by the Interstate Commerce Commission. Three furnaces in southern Ohio and St. Louis made objections to the proposed rate and a hearing will be held shortly to hear objections. In the meantime the old rate of \$4.05 prevails.

Pig Iron.—While a number of sales are reported for fourth quarter shipment, most of the orders are for carload lots for immediate shipment. Melters generally are not inclined to contract at high prices, as most of them have low-priced iron now under contract and are willing to wait till the railroad situation loosens up and shipments are resumed. Prices are very firm and Southern iron is at least \$2 higher than last week, \$25 Birmingham being the minimum. We note one sale of 800 tons at this figure for fourth quarter for September delivery. The range is \$25 to \$28 and a number of carloads have been sold where shipment could be guaranteed. In southern Ohio \$32 represents the market, although \$34 has been done on carload lots for immediate shipment. We note a sale of a round tonnage of malleable to a central Ohio melter for fourth quarter, the iron coming from Chicago district on the basis of \$32 furnace. A Michigan melter bought 1500 tons of foundry and malleable grades at the same figure. Small lot sales of silvery are also reported at the schedule though for immediate shipment it is said that \$43.50 has been done for 9 per cent. Inquiries mostly are for carload lots to 200 tons for immediate shipment. Embargoes are holding up the shipment of iron from southern Ohio furnaces, the only road supplying cars being the Detroit, Toledo & Ironton.

Based on freight rates of \$4.05 from Birmingham and \$2.17 from Ironton, we quote f.o.b. Cincinnati:

Southern coke, sil. 1.75 to 2.25 (base).....	\$29.05
Southern coke, sil. 2.25 to 2.75 (No. 2 soft) ..	29.55
Ohio silvery (nominal), 8 per cent.....	39.77
Southern Ohio coke, sil. 1.75 to 2.25 (No. 2) ..	34.27
Basic Northern .....	32.27
Malleable .....	34.27

Finished Material.—While inquiries continue to come in for prompt shipment material, consumers generally are not actively contracting for future shipment, and mills are equally averse to taking orders with any definite delivery promises. While 1.90c. can still be done on bars, shapes and plates for indefinite delivery, 2c. more generally represents the market, and on small tonnages for quick shipment 2.15c. is easily secured. The demand for sheets continues good, and mills are booking fourth quarter business from regular customers, with the understanding, however, that all the tonnage may not be shipped during the period. Some customers are anxious to cover for their sheet requirements at present prices for first quarter of next year, but are meeting with little encouragement. Mills are being handicapped in their operations by a shortage of cars for shipment of materials, and in order to secure a car as much red tape as was customary during the war period has to be gone through. Shipments south of the Ohio River are very poor. Some mills are using the river for points between Pittsburgh and Louisville, but the river packets generally will carry only a small tonnage of iron and steel products, the general restriction being a single carload. Prices on all products are advancing steadily, but with a resumption of coal mining operations, it is hoped that mill operations will increase in the near future. Inquiries in the structural field are limited to jobs taking less than 100 tons, and during the past week no awards of importance were made.

Plant Operations.—Steel plants in the district are maintaining their schedule of operations, but difficulties are increasing owing to coal and car shortage. It is hoped, however, that it will not be necessary to further curtail operations, which are running close to 85 per cent of capacity among all the plants.

Warehouse Business.—Prices on all products have been advanced from \$2 to \$4 per ton during the week, and it is considered probable that further advances will be made within a short time. The demand for materials, with the exception of wire products, is heavy, and jobbers' stocks are badly broken.

Cincinnati jobbers quote: Iron and steel bars, 2.95c. base; reinforcing bars, 3.05c. base; hoops, 4.05c. base; bands, 3.85c. base; shapes and plates, 3.05c. base; cold-rolled rounds, 3.75c. base; cold-rolled flats, squares and hexagons, 4.25c. base; No. 10 blue annealed sheets, 4c.; No. 28 black sheets, 4.70c.; No. 28 galvanized sheets, 5.75c.; No. 9 annealed wire, \$2.85 per 100 lb.; common wire nails, \$3.05 per keg, base.

Coke.—It is expected that at least two furnaces in the Jackson and Wellston district will be in blast before the end of the month, as arrangements are now being completed for fuel supply. All available coke is eagerly snapped up. The situation appears to be easing up, but prices remain firm.

Old Material.—As last quoted, the scrap market is much stronger and inquiries are good, particularly for cast grades. We note a sale of 1000 tons of railroad wrought to a melter in the South and inquiries ranging from 100 to 500 tons are more prominent. Prices, while inclined to advance, are not quotably higher.

We quote dealers' buying prices, f.o.b. cars Cincinnati:

Per Gross Ton	
Bundled sheets .....	\$9.50 to \$10.00
Iron rails .....	15.50 to 16.00
Relaying rails, 50 lb. and up.....	26.50 to 27.00
Rails for rerolling.....	14.50 to 15.00
Heavy melting steel.....	14.50 to 15.00
Steel rails for melting.....	14.00 to 14.50
Car wheels .....	16.50 to 17.00
Per Net Ton	
No. 1 railroad wrought.....	13.00 to 13.50
Cast borings .....	10.00 to 10.50
Steel turnings .....	9.00 to 9.50
Railroad cast .....	16.00 to 16.50
No. 1 machinery.....	19.00 to 19.50
Burnt scrap .....	10.50 to 11.00
Iron axles .....	19.50 to 20.00
Locomotive tires (smooth inside).....	12.50 to 13.00
Pipes and flues.....	7.50 to 8.00

### Railroad Strike Ended

The strike of train service employees on the Elgin, Joliet & Eastern Railroad, which was called in sympathy with that of the shopmen, has been settled. This road is a Steel Corporation subsidiary in the Chicago district.

## Birmingham

### Pig Iron for Spot Delivery Sold at \$27.50— Offers of \$25 Refused

BIRMINGHAM, Sept. 5.—Birmingham pig iron for spot delivery has been sold at \$27.50 by one maker and quoted by another. The lots were small ones. This price is easily gotten where prompt delivery is assured. Firm offers for round lots at \$25 for fourth quarter have been made and declined. At the same time, two makers remain on the base of \$25 for such iron as they can book in view of the state of order books. The spot and fourth quarter markets seem to be converging. The market is very nervous. Last week's business was small and deliveries were for nearby points, a large inquiry for spot requirements having been declined on account of the rail embargoes. The only sale of consequence for fourth quarter delivery that came to the surface was one involving 2000 to 3000 tons, most of which is for October and November and brought a base of \$24. Larger tonnage was proffered at a shade under that base, but was not taken. A consumer, who was offered \$24 for fourth quarter, said he could do better, but there was no sale denoting that he could. Makers as a rule are out of the market for the fourth quarter. Makers now regard \$25 as the base for fourth quarter because the 20 per cent wage advance announced by the Steel Corporation and to which all have conformed means \$2.50 to \$3 a ton more in cost of producing pig iron. Charcoal iron has been fairly active at \$33 and \$34. Makers seem agreed that spot and fourth quarter iron prices have about reached the same base. Birmingham iron operators have received official notice of the suspension of the lower rates on iron to Louisville, Cincinnati and St. Louis proposed by Louisville & Nashville and other Southern carriers to go in effect Sept. 1 pending further investigation. No order has been received as to lower rates proposed by the Arrow Transportation Co. and Burlington Railroad on northern Alabama iron to Chicago effective Sept. 15. The Sloss-Sheffield Steel & Iron Co. has made a shipment of 3000 tons of by-product coke to New England foundries by vessel out of Charleston. The oven price was \$8, it is announced.

We quote per gross ton f.o.b. Birmingham district furnaces as follows:

Foundry, silicon 1.75 to 2.25.....	\$25.00 to \$27.00
Basic .....	24.00 to 25.00
Charcoal, warm blast.....	33.00 to 34.00

**Finishing Mills.**—The finishing mills of the district remain on full turn. The Tennessee company is on double turn in the mills at Fairfield, Bessemer and Ensley. The Chickasaw Shipbuilding & Car Co. has turned out about 500 of the new cars out of the 1750 ordered by the Seaboard Air Line and they are coming out at the rate of 15 new ones and 10 to 12 repaired ones per day. The Louisville & Nashville order for 1000 cars comes next. The mills of the Gulf States Steel Co. and the American Steel & Wire Co. are on full turn in finishing departments. Mills do not seem worried over accumulations in view of the strength of the market.

**Cast Iron Pipe.**—The pressure pipe trade is momentarily expecting to hear of scheduled prices for the De Lavaud machine made pipe which has undergone all kinds of tests at the North Birmingham plant of the United States Cast Iron Pipe & Foundry Co. and satisfied all experts. The 6-, 8- and 10-in. sizes have been given the acid test and proven all right and the same results are expected of the 12-in. sizes. The base remains at \$38.50 with many small orders, but not many new large ones coming in. Sanitary pipe has been less active and the base is \$60 where it was \$65. The former figure is regarded as high enough. Unfilled tonnage of sanitary pipe is believed to be less than it was. All pipe plants operate on full turn most of the time with occasional interruptions following delay in receiving pig iron. The Chattanooga plant of the leading interest was down the better part of last week, but the Birmingham plants operate on full turn. The leading interest is moving 4000 tons to the Government barracks in Honolulu via ship out of Mobile.

**Old Material.**—Demand for scrap is picking up and prices are much firmer with advances momentarily expected. Cast has already sold more than \$1 over quoted prices to small consumers.

We quote per gross ton f.o.b. Birmingham district yards as follows:

Steel rails .....	\$13.00 to \$15.00
No. 1 steel.....	12.00 to 15.00
No. 1 cast.....	15.00 to 16.00
Car wheels .....	15.00 to 16.00
Tramcar wheels .....	14.00 to 15.00
Stove plate .....	13.00 to 14.00
Cast iron borings.....	6.00 to 7.00
Machine shop turnings.....	4.00 to 5.00

## Cleveland

### Fuel Conditions Improved—Active Demand for Finished Materials

CLEVELAND, Sept. 5.—The fuel situation improved considerably during the week and the steel situation eased up somewhat owing to the fact that some independent mills that had been entirely out of the market are increasing operations now that steam coal has become fairly plentiful and are again entering orders. The American Steel & Wire Co., which has been operating but one of four Central furnaces in Cleveland, started up a second furnace Friday and expects to get a third stack in operation within a week. Some of the independent steel companies and merchant furnaces are now figuring on coke and coking coal, which have declined in price, and expect to resume operations shortly. The question now seems to be more one of price of fuel rather than difficulty in securing a supply. Fuel shipments from Kentucky and West Virginia, curtailed by the inability of the railroads to operate at normal capacity, show no improvement.

**Pig Iron.**—The market was less active during the past week than for some time. With the available supply very limited, sales were confined mostly to car lots. The price advance seems to have been checked with a maximum price of \$35 that is being named on foundry iron by a Cleveland producer. Some of the lake furnaces are still able to take care of the urgent needs of their customers and are adhering to their recent price of \$32 to \$33 for foundry iron for early shipment and southern Ohio iron is available at the same price. Considering the scarcity, the demand for spot iron is rather light, indicating that most consumers have stocks. Now that easing up of the situation is looked for, foundries are expected to show less haste in placing orders to cover their early requirements. Inquiries include one from the Gould Coupler Co. for 1000 to 2000 tons of malleable iron for early shipment. Some new inquiries have come out for the fourth quarter contracts and on these a local furnace quoted \$35, but this price failed to bring any orders. Some fourth quarter business in foundry iron is being booked in Detroit at \$32, and in Buffalo at \$33. No further advance has been made on low phosphorus iron. We note the sale of 1000 tons to a Pittsburgh district consumer for the remainder of the year and 700 tons in small lots all at \$38.

Quotations below are f.o.b. local furnace for Northern foundry iron, not including a 50c. switching charge. Other quotations except basic and low phosphorus are delivered Cleveland, being based on a \$3.02 rate from Jackson and a \$6 rate from Birmingham:

Basic, Valley furnace, nominal.....	\$27.00
Northern No. 2 fdy., sil. 1.75 to 2.25..	35.00
Southern fdy., sil. 1.75 to 2.25.....	\$30.00 to 31.00
Malleable .....	35.00
Ohio silvery, nom., sil. 8 per cent....	40.52 to 43.52
Standard low phos., Valley furnace..	38.00

**Iron Ore.**—Ore shipments from the Lake Superior district during August showed a gain over July in spite of the slowing down of the movement from a few ports caused by the curtailment of the railroad transportation facilities. Shipments during the month amounted to 9,016,426 gross tons as compared with 8,942,336 tons in July. Shipments for the season up to Sept. 1 were 26,309,939 tons as compared with a total movement last year of 22,300,726 tons. The rail situation on lines leading to Ashland and Escanaba has improved. At the



lower end of the lakes, railroad conditions are interfering with shipments to southern Ohio, but the ore movement to other points is about normal.

We quote delivered lower lake ports: Old range Bessemer, 55 per cent iron, \$5.95; Old range non-Bessemer, 51 1/4 per cent iron, \$5.20; Mesabi Bessemer, 55 per cent iron, \$5.70; Mesabi non-Bessemer, 51 1/2 per cent iron, \$5.05.

**Bolts, Nuts and Rivets.**—A price advance of 10 per cent on bolts and nuts was made by leading manufacturers Aug. 31 and rivet manufacturers on the same date advanced prices \$7 per ton to 3c. for structural and 3.10c. for boiler rivets. One or two rivet manufacturers made this advance the previous week on some small lot orders. Small rivets have been advanced to 60 and 5 per cent off list, with 65 per cent off list for less than car lots. The advances are due to the increasing cost of steel. Bolt and nut manufacturers are taking orders for both immediate shipment and fourth quarter at the new prices. Some of the rivet manufacturers, in view of market conditions, are declining to make fourth quarter contracts. There was a spurt in the demand during the week, particularly from jobbers who wished to get their orders entered before the price advance.

**Finished Iron and Steel.**—The demand for finished iron and steel is fairly heavy, showing no falling off as compared with the past few weeks. Many consumers are badly in need of material, but it is expected that with the increased mill operations the supply will become more plentiful in the next two or three weeks. There is a very active inquiry for structural material, the demand for which is about equal to that of steel bars. The suspension of steel shipments at the Ford Motor Co. has not been followed by a holding up of orders by a number of large consumers making automobile parts and suspension orders have not come from other automobile plants. About the only change in the price situation during the week was an advance of \$5 per ton to 2.50c. on plates by a local mill. Plate quotations now range from a 2c. minimum, with much of the business being placed at 2.25c., although some boiler plates are being sold at 2.50c. Quotations on steel bars range from 1.90c. to 2c. and on structural shapes from 2c. to 2.10c., although some mills are quoting higher prices for early shipment, as high as 2.35c. being quoted for shapes. The advance in steel prices has not checked building activity. The city of Cleveland will shortly ask for bids for a pumping station requiring 1000 tons of steel. The Great Lakes Engineering Works has taken a large ferry-boat for the Detroit River.

Jobbers quote steel bars, 2.81c.; plates and structural shapes, 2.91c.; No. 9 galvanized wire, 3c.; No. 9 annealed wire, 2.50c.; No. 28 black sheets, 4.25c.; No. 28 galvanized sheets, 5.25c.; No. 10 blue annealed sheets, 3.50c. to 3.61c.; hoops and bands, 3.61c.; cold-rolled rounds, 3.60c.; flats, squares and hexagons, 4.10c.

**Reinforcing Bars.**—The demand is fairly heavy for early shipment and much of the material is being taken out of warehouses. Prices on hard steel reinforcing bars are unchanged at 2c.

**Sheets.**—The demand for sheets continues fairly heavy and prices are firm. A local mill has advanced its price to 2.70c. for blue annealed in heavier gages and to 5c. for automobile body sheets, the latter for the last half of October delivery. Black sheets can still be purchased at 3.50c. and galvanized at 4.50c. for early shipment.

**Coke.**—Offerings of Connellsville foundry coke are more plentiful and the market is easier. While \$14.50 is being quoted for better grades, lower prices are expected this week.

**Old Material.**—Scrap prices have further advanced and the market is very firm. There is not a great deal of activity, although there is still some demand for heavy melting steel and compressed steel to cover orders recently released by the McKinney Steel Co. Dealers have been able to buy some heavy melting steel at \$16.50 from producers, but dealers are asking higher prices. The advances in pig iron prices together with the fact that railroads are not offering a great deal of scrap this month, owing probably to a scarcity of labor,

have resulted in a stiffening of prices on cast scrap. A local foundry has purchased railroad malleable at around \$17.50 delivered, but the market has evidently further advanced. No. 1 cast scrap is from \$2 to \$3 higher. A local mill has held up shipments on turnings.

We quote per gross ton, f.o.b. Cleveland, as follows:

Heavy melting steel.....	\$17.00 to \$17.25
Steel rails under 3 ft.....	17.25 to 17.75
Rails for rolling.....	17.25 to 18.00
Iron rails.....	15.00 to 16.00
Iron car axles.....	18.00 to 19.00
Low phosphorus melting.....	18.00 to 18.25
Cast borings.....	13.00 to 13.50
Machine shop turnings.....	12.25 to 12.50
Mixed borings and short turnings.....	12.25 to 12.50
Compressed steel.....	15.00 to 15.25
Railroad wrought.....	14.50 to 15.00
Railroad malleable.....	17.25 to 17.75
Light bundled sheet stampings.....	11.50 to 12.00
Steel axle turnings.....	14.50 to 15.00
No. 1 cast.....	19.50 to 20.00
No. 1 busheling.....	12.00 to 12.50
Drop forge flashings over 10 in.....	12.00 to 12.25
Drop forge flashings under 10 in.....	12.00 to 12.25
Railroad grate bars.....	15.00 to 15.50
Stove plate.....	15.00 to 15.50
Pipes and flues.....	11.50 to 12.00

## Philadelphia

### Foundry Pig Iron and Steel Prices Advance Still Further

PHILADELPHIA, Sept. 5.—The iron and steel trade in this district has moved to higher price levels during the past week. Increasing costs, together with better demand, and greater commitments have brought about the changes. They cover many lines. Among them are foundry pig iron, plates, structural material, iron and steel bars, nuts, bolts and rivets, light rails, wire rods, wire products and scrap. The price increases range from 50c. and \$1 a ton in the case of scrap, \$2 in pig iron, and up to \$5 in finished lines.

Operations have shown only slight improvement and no substantial increase is expected during the next two weeks. With heavier deliveries of coal made under priority rulings, however, it is expected that the transportation situation will become better, affording more adequate deliveries of raw materials to steel works and of manufactured products to consumers. The railroads are actively in the market for locomotives, cars, and steel tonnage for repair work in preparation for growing demands upon them.

Among the transportation difficulties which have risen is the declaration of an embargo on steel and other shipments on the Baltimore & Ohio Railroad east of Cumberland, Md.

The general tone of the trade is one of growing cheerfulness. Rollings at low prices have been entirely completed by some makers, while others have almost finished production at these levels. September therefore finds them on a higher scale which affords better margins consistent with the greater costs.

**Ferroalloys.**—Most consumers of ferromanganese have covered their requirements so that the greater portion of shipments, if not all of them, will have been delivered before the high tariff duty becomes effective. Inquiry is light. Last quarter standard ferromanganese is quoted at \$67.50, Atlantic seaboard, while spot material is quoted at \$72.50 to \$75. Prompt spiegeleisen is quoted at \$38.50 and is in light demand.

**Pig Iron.**—With a greater scarcity of domestic iron, the market continues its upward swing. No. 2 plain and No. 2 X have advanced \$2 per ton, with No. 1 X quoted nominally at \$37.14 to \$37.64, delivered Philadelphia. No. 2 now is quoted at \$35.14 to \$35.64 and No. 2 X at \$36.14 to \$36.64. Foreign iron continues to come in good sized lots, although the incoming tonnages are said to have been overstated in some reports. Foreign iron is being delivered at approximately \$5 per ton under domestic prices. It is understood that for deferred delivery Continental No. 2 plain iron can be bought for \$26 and less, delivered. Sales of foreign iron include Continental, Scotch and English. Scotch iron, 2.50 to 3.25 per cent silicon, is commanding \$32 to \$33, delivered, for shipments over next month, Con-

tinental and English iron, 2.25 to 2.75 silicon, high in phosphorus, \$28 for September shipments from abroad. Scotch iron for prompt shipment is said to have sold during the past week at more than \$35. Sales of domestic iron have been extremely limited owing to restricted operations, the tonnages moving being chiefly foundry grades. Active furnaces are getting delivery on coke so that they can continue to operate. One large steel maker will blow in two additional blast furnaces this week. A round tonnage of foreign low phosphorus iron, copper, nickel, and chrome free, silicon 2 to 2.50 per cent, for delivery the middle of September has been sold at \$37, c.i.f. Foreign iron ore still is coming in in fair volume, including Swedish magnetic and African hematite, at lower prices than domestic ore.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia, and include freight rates varying from 76 cents to \$1.64 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	\$35.14 to \$35.64
East. Pa. No. 2X, 2.25 to 2.75.....	36.14 to 36.64
East. Pa. No. 1X.....	37.14 to 37.64
Virginia No. 2 plain, 1.75 to 2.25 sil..	29.17 to 30.17
Virginia No. 2X, 2.25 to 2.75 sil....	30.17 to 31.17
Basic delivery eastern Pa.....	32.00 to 33.00
Gray forge .....	31.00 to 32.00
Malleable .....	35.00 to 36.00
Standard low phos. (f.o.b. furnace)...	38.00 to 40.00
Copper bearing low phos. (f.o.b. furnace) .....	35.00 to 40.00

**Semi-finished Steel.**—The market for semi-finished steel in this district is comparatively quiet and prices remain unchanged. Forging billets and rerolling billets have been sold the past week at the higher prices which went into effect at that time. The former is quoted at \$50.17 and the latter at \$45.17, delivered Philadelphia.

**Plates.**—Growing strength is reflected in the market for plates and more independent makers are asking as high as 2.50c., Pittsburgh, and sales at this figure are reported. The market is quoted at 2.25c. to 2.50c., attractive tonnages being available at the lower figure. Demand is of a miscellaneous character, but comes principally from the railroads for car repair work and also for new cars and locomotives. The trade is expecting increasing demands with the approach of fall. The Baldwin Locomotive Works has taken 100 locomotives for the Pennsylvania Railroad, which, in addition will build 15 locomotives at its Altoona, Pa., shops. It is expected that the 4000 to 5000 tons of plates for the 100 locomotives will be placed at once if this has not already been done. Deliveries of plates range from two to 16 weeks, depending on the sizes and kinds. A maker in this district has taken approximately 700 tons for a Wilson Line boat. Most producers are cleaned up on low priced tonnage and are on the new and higher basis.

**Structural Material.**—Fabricators report that a good volume of business is being taken, most of it representing small individual lots. Deliveries are being made in six to eight weeks. Plain material has advanced and now is quoted at 2.10c to 2.25c., Pittsburgh, by independent mills. Mills continue to be reluctant to quote for extended delivery.

**Bars.**—Independents are quoting the same range on soft steel bars, 2.25c. to 2.50c., Pittsburgh, as on plates, and sales at 2.35c. have been reported. Inquiry is fair. Light demand still exists for common iron bars. The minimum quotation on the latter now has advanced to 2.10c. from 2c., while a price as high as 2.25c. is being asked for small tonnages.

**Warehouse Business.**—Demand for warehouse tonnage is fair and comes from various sources, including railroads desiring prompt delivery. Prices are unchanged.

Soft steel bars and small shapes, 2.80c.; iron bars (except bands), 2.80c.; round edge iron, 3c.; round edge steel, iron finish, 1½ x ½ in., 3c.; round edge steel planished, 3.75c.; tank steel plates, ¾-in. and heavier, 2.90c.; tank steel plates, 3/16-in., 3.10c.; blue annealed steel sheets, No. 10 gage, 3.60c.; black sheets, No. 28 gage, 4.45c.; galvanized sheets, No. 28 gage, 5.60c.; square twisted and deformed steel bars, 2.90c.; structural shapes, 2.90c.; diamond pattern plates, ¾-in., 4.80c.; 3/16-in., 5c.; spring steel, 4c.; round cold-rolled steel, 3.50c.; squares and hexagons, cold-rolled steel, 4c.; steel hoops, No. 13 gage and lighter, 4c.; steel bands, No. 12 gage to 3/16-in., inclusive, 3.60c.; rails, 2.80c.; tool steel, 8c.; Norway iron, 5.50c.

**Nuts, Bolts and Rivets.**—An increase of approximately 10 per cent has been made by a prominent producer in this district in bolts, nuts and rivets, effective Sept. 1. The following are the new prices, Pittsburgh base: machine bolts with hot pressed nuts, increased to 50, 10 and 10 off list from 60 and 10 off list; United States standard hot pressed nuts, cold punched, square, hexagon, blank and tapped, increased to 3.75c. per pound off list from 4.50c.; steel boiler rivets increased to 3.10c. per pound from 2.50c.; structural button-head rivets increased to 3c. per pound from 2.40c. and small rivets increased to 65 and 5 off list from 70 and 10 off. Demand for all three products is growing and deliveries are being made in two to three weeks. The demand for rivets is, however, light but is improving. Requirements for the railroads are the greatest.

**Light Rails.**—Light rails, 45 pounds and under, have been advanced \$5 per ton to 2.25c., Pittsburgh.

**Wire Rods and Wire Products.**—Soft wire rods have been increased \$5 per ton in price by an independent maker and now are quoted at \$45, Pittsburgh. Demand has increased. Nails now are quoted at 2.75c., Pittsburgh, and plain wire at 2.50c., Pittsburgh.

**Old Material.**—Most grades of scrap have been advanced from 50c. to \$1 per ton. The increase does not include some of the leading grades, such as heavy melting steel and No. 1 cast scrap. Dealers still are cautious about selling, expecting still higher prices. Rolling mill demand has shown particular activity.

We quote for delivery at consuming points in this district as follows:

No. 1 heavy melting steel.....	\$15.50 to \$16.00
Scrap rails .....	15.50 to 18.00
Steel rails for rolling.....	17.00 to 17.50
No. 1 low phos., heavy 0.04 and under	22.00 to 24.00
Cast iron car wheels.....	20.00 to 20.50
No. 1 railroad wrought.....	18.50 to 19.50
No. 1 yard wrought.....	17.50 to 18.00
No. 1 forge fire.....	14.00 to 14.50
Bundled sheets (for steel works)....	13.50 to 14.50
No. 1 busheling.....	13.50 to 14.50
No. 2 busheling.....	10.90 to 11.00
Turnings (short shoveling grade for blast furnace use).....	13.50 to 14.00
Mixed borings and turnings (for blast furnace use) .....	13.50 to 14.00
Machine-shop turnings (for steel works use) .....	14.00 to 14.50
Machine-shop turnings (for rolling mill use) .....	14.50 to 15.00
Heavy axle turnings (or equivalent)	14.50 to 15.00
Cast borings (for steel works and rolling mills) .....	15.00 to 15.50
Cast borings (for chemical plants)...	17.50 to 18.00
No. 1 cast.....	19.00 to 20.00
Heavy breakable cast (for steel plants) .....	19.00 to 19.50
Railroad grate bars.....	16.00 to 16.50
Stove plate (for steel plant use)....	16.00 to 16.50
Railroad malleable .....	15.90 to 15.50
Wrought iron and soft steel pipes and tubes (new specifications).....	14.50 to 15.50
Shafting .....	21.00 to 22.00

## Detroit Scrap Market

DETROIT, Sept. 5.—Cast scrap is in demand and there has been a tendency to cover on this material for the remainder of the year. As usual, the larger tonnages of scrap produced by the automobile plants has been sold for delivery to Cleveland and Valley points for September delivery. The following prices are on a gross ton basis f.o.b. cars producers' yards:

Heavy melting steel.....	\$15.25 to \$15.75
Shoveling steel .....	14.50 to 15.50
No. 1 machinery cast.....	15.50 to 16.50
Cast borings .....	12.00 to 13.00
Automobile cast scrap.....	20.50 to 21.50
Stove plate .....	14.00 to 14.50

The Warren Foundry & Machine Co., Phillipsburg, N. J., maker of cast-iron pipe, has changed its name to the Warren Foundry & Pipe Co. The name, which has been borne by that company since its establishment in 1856, was changed by a resolution of the stockholders and authorization of the Secretary of State of New Jersey, as it was somewhat of a misnomer, the company never having entered into the manufacture of machinery. No other change has been made.



# Prices Finished Iron and Steel, f.o.b. Pittsburgh

## Plates

Sheared, tank quality, base, per lb.....2.00c. to 2.50c.

## Structural Material

Beams, channels, etc.....2.00c. to 2.25c.

## Iron and Steel Bars

Soft steel bars, base, per lb.....1.90c. to 2.25c.

Refined iron bars, base, per lb.....2.45c.

## Hot-Rolled Flats

Hoops, base, per lb.....2.75c.

Bands, base, per lb.....2.75c.

Strips, base, per lb.....2.75c.

Cotton ties, per bundle of 45 lb.....\$1.12

## Cold-Finished Steels

Bars and shafting, base, per lb.....2.25c. to 2.50c.

Strips, base, per lb.....4.25c.

## Wire Products

Nails, base, per keg.....\$2.60

Bright plain wire, base, per 100 lb.....2.35

Annealed fence wire, base, per 100 lb.....2.35

Galvanized wire, base, per 100 lb.....2.85

Galvanized barbed, base, per 100 lb.....3.15

Galvanized staples, base, per keg.....3.15

Painted barbed wire, base, per 100 lb.....2.65

Polished staples, base, per keg.....2.65

Cement coated nails, base, per count keg.....2.10c.

Woven fence, carloads (to jobbers).....73 per cent off list

Woven fence, carloads (to retailers).....70½ per cent off list

## Bolts and Nuts

Machine bolts, small, rolled threads, 60 and 10 per cent off list

Machine bolts, small, cut threads, 50, 10 and 10 per cent off list

Machine bolts, larger and longer, 50, 10 and 10 per cent off list

Carriage bolts, ¾ x 6 in.:

Smaller and shorter, rolled threads,

50, 10 and 10 per cent off list

Cut threads.....50 and 10 per cent off list

Longer and larger sizes.....50 and 10 per cent off list

Lag bolts.....60 and 10 per cent off list

Plow bolts, Nos. 1, 2 and 3 heads.....50 and 10 per cent off list

Other style heads.....20 per cent extra

Machine bolts, c.p.c. and t. nuts, ¾ x 4 in.:

Smaller and shorter.....45 and 10 per cent off list

Larger and longer sizes.....45 and 10 per cent off list

Hot pressed square or hex. blank nuts.....\$3.75 off list

Hot pressed nuts, tapped.....3.75 off list

C.p.c. and t. sq. or hex. nuts, blank.....3.75 off list

C.p.c. and t. sq. or hex. nuts, tapped.....3.75 off list

Semi-finished hex. nuts:

¾ in. and smaller, U. S. S.....80 per cent off list

¾ in. and larger, U. S. S.....75 per cent off list

Small sizes, S. A. E.....80 and 10 per cent off list

S. A. E. ¾ in. and larger.....75 and 10 per cent off list

Stove bolts in packages.....80 and 5 per cent off list

Stove bolts in bulk.....80, 5 and 2½ per cent off list

Tire bolts.....50, 10 and 10 per cent off list

## Cap and Set Screws

Milled square and hex. head cap screws.....75 and 10 per cent off list

Milled set screws.....75 per cent off list

Upset cap screws.....80 per cent off list

Upset set screws.....80 and 5 per cent off list

## Rivets

Large structural and ship rivets, base, per 100 lb.....\$3.00

Large boiler rivets, base, per 100 lb.....3.10

Small rivets.....65 per cent off list

## Track Equipment

Spikes, 9-16 in. and larger, base, per 100 lb.....\$2.75

Spikes, ½ in. and smaller, base, per 100 lb.....3.25

Spikes, boat and barge, base, per 100 lb.....3.25

Track bolts, base, per 100 lb.....\$3.75 to 4.50

Tie plates, per 100 lb.....2.25

Angle bars, base, per 100 lb.....2.40

## Welded Pipe

### Butt Weld

Inches Steel Black Galv. Iron Black Galv.

¼.....51½.....31½.....1½.....+27½

½.....57.....31½.....1½.....13½

¾.....62.....31½.....1½.....22½

1.....66.....31½.....1½.....24½

1 to 3.....68.....56½

## Lap Weld

2.....61.....49½.....2.....34½.....20½

2½ to 6.....65.....53½.....2½ to 6.....37½.....24½

7 to 8.....62.....49½.....7 to 12.....35½.....22½

9 to 12.....61.....48½

### Butt Weld, extra strong, plain ends

¼.....47½.....31.....½ to ¾.....+9½.....+42½

½.....53.....36½.....¾.....30½.....18½

¾.....59.....48½.....1.....37½.....23½

1.....64.....53½.....1 to 1½.....39½.....25½

1 to 1½.....66.....55½

2 to 3.....67.....56½

### Lap Weld, extra strong, plain ends

2.....59.....48½.....2.....35½.....22½

2½ to 4.....63.....52½.....2½ to 4.....38½.....26½

4½ to 6.....62.....51½.....4½ to 6.....37½.....25½

7 to 8.....58.....46½.....7 to 8.....30½.....18½

9 to 12.....52.....39½.....9 to 12.....25½.....13½

To the large jobbing trade the above discounts are increased by one point, with supplementary discounts of 5 and 2½ per cent.

## Boiler Tubes

### Lap Welded Steel

1½ in.....23½

2 to 2½ in.....38

2½ to 3 in.....49

3½ to 13 in.....54

### Charcoal Iron

1½ in.....+2

1¾ to 1½ in.....8

2 to 2½ in.....18

2½ to 3 in.....23

3½ to 4½ in.....25

To large buyers of steel tubes a supplementary discount of 5 per cent is allowed.

## Standard Commercial Seamless Boiler Tubes

Discounts on cold-drawn tubes in carload lots, f.o.b. Pittsburgh, follow:

1 in.....57.....2½ and 2¾ in.....40

1½ and 1½ in.....49.....3 in.....44

1¾ in.....33.....3½ to 4 in.....49

2 and 2¼ in.....36.....4½ in. and 5 in.....41

## Hot Rolled

3 in.....46.....3½ to 4 in.....51

Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extras for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be sold at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

## Seamless Mechanical Tubing

Carbon under 0.30, base, 85 per cent off list. Carbon 0.30 to 0.40, base, 83 per cent off list. Plus usual differentials and extras for cuttings.

## Seamless Locomotive and Superheater Tubes

Cents per Ft. 2-in. O.D. 12 gage.....13.....2½-in. O.D. 10 gage.....17½

2-in. O.D. 11 gage.....14.....3-in. O.D. 7 gage.....33

2-in. O.D. 10 gage.....15.....1½-in. O.D. 9 gage.....13

2½-in. O.D. 12 gage.....15.....5½-in. O.D. 9 gage.....51

2½-in. O.D. 11 gage.....16.....5½-in. O.D. 9 gage.....53

## Tin Plate

Standard cokes, per base box.....\$4.75

## Terne Plate

(Per package, 200-lb.)

8-lb. coating.....\$9.30.....25-lb. coating I. C.....\$14.25

8-lb. coating I. C.....9.60.....30-lb. coating I. C.....15.25

15-lb. coating I. C.....11.80.....35-lb. coating I. C.....16.25

20-lb. coating I. C.....13.00.....40-lb. coating I. C.....17.25

## Sheets

### Blue Annealed

Nos. 9 and 10 (base), per lb.....2.50c. to 2.60c.

### Box Annealed, One Pass Cold Rolled

No. 28 (base), per lb.....3.35c. to 3.50c.

### Galvanized

No. 28 (base), per lb.....4.35c. to 4.50c.

### Tin-Mill Black Plate

No. 28 (base), per lb.....3.35c. to 3.50c.

Manufacturers have pamphlets, which can be had upon application, giving price differentials for gage and extras for length, width, shearing, etc.

## Freight Rates

All rail freight rates from Pittsburgh on finished iron and steel products, in carload lots, to points named, per 100 lb., are as follows:

Philadelphia, domestic.....\$0.325	Buffalo.....\$0.265	St. Louis.....\$0.43	Pacific Coast.....\$1.50
Philadelphia, export.....0.235	Cleveland.....0.215	Kansas City.....0.735	Pac. Coast, ship plates 1.20
Baltimore, domestic.....0.315	Cleveland, Youngstown.....0.19	Kansas City (pipe).....0.705	Birmingham.....0.69
Baltimore, export.....0.225	Comb.....0.295	St. Paul.....0.595	Memphis.....0.385
New York, domestic.....0.34	Detroit.....0.295	Omaha.....0.735	Jacksonville, all rail.....0.50
New York, export.....0.255	Cincinnati.....0.295	Omaha (pipe).....0.705	Jacksonville, rail and water.....0.415
Boston, domestic.....0.365	Indianapolis.....0.31	Denver.....1.275	New Orleans.....0.515
Boston, export.....0.255	Chicago.....0.34	Denver (pipe).....1.215	

The minimum carload to most of the foregoing points is 36,000 lb. To Denver the minimum loading is 40,000 lb., while to the Pacific Coast on all iron and steel products, except structural material, the minimum is 80,000 lb. On the latter item the rate applies to a minimum of 50,000 lb., and there is an extra charge of 9c. per 100 lb. on carloads of a minimum of 40,000 lb. On shipments of wrought iron and steel pipe to Kansas City, St. Paul, Omaha, and Denver the minimum carload is 46,000 lb. On iron and steel items not noted above the rates vary somewhat and are given in detail in the regular railroad tariffs.

Rates from Atlantic Coast ports (i.e., New York, Philadelphia and Baltimore) to Pacific Coast ports of call on most steamship lines, via the Panama Canal, are as follows: Pig iron, 30c. to 40c.; ship plates, 30c. to 40c.; ingot and muck bars, structural steel, common wire products, including cut or wire nails, spikes and wire hoops, 30c. to 40c.; sheets and tin plates, 50c.; rods, wire rope, cable and strands, 75c.; wire fencing, netting and stretcher, 50c.; pipe, not over 8 in. in diameter, 50c.; over 8 in. in diameter, 2½c. per in. or fraction thereof additional. All prices per 100 lb. in carload lots, minimum 40,000 lb.

## FRENCH MARKET ADVANCES

### Recent Improvement in Exports Followed by Domestic Demand—More Furnaces in Blast (Special Correspondence)

PARIS, Aug. 24.—The situation for the present is satisfactory. The improvement in exports, due to the appreciation of British currency, to the strikes in the United States and to the inability of German sellers to book ahead, has been followed by an increase in domestic orders, and prices generally are firm. More blast furnaces have been blown in.

French iron and steel exports and imports during the first half of 1922 were as follows, as compared with last year:

	Exports	
	First Half 1922, Metric Tons	First Half 1921, Metric Tons
Pig iron .....	247,000	316,000
Semi-finished steel .....	357,000	240,000
Iron ore .....	4,328,000	2,666,000
	Imports	
	First Half 1922, Metric Tons	First Half 1921, Metric Tons
Pig iron .....	35,000	15,000
Semi-finished steel .....	161,000	90,000
Hoops and strip .....	19,000	8,000
Tin plate .....	23,000	7,500

**Pig Iron.**—Chill-cast foundry pig iron No. 3 is firm. One Lorraine concern, probably overstocked, is still quoting 205 francs, but this price is now the exception, the present average being 205 to 215 francs. For export, Lorraine and Luxemburg producers, intent on sales to Germany, are offering but small quantities f.o.b. Antwerp at 225 to 230 francs (Belgian currency), which is equivalent to 213 to 218 francs (French currency). Belgians are quoting 220 to 225 francs, in their own currency, f.o.b. Antwerp.

Hematite pig iron, which will not be controlled by the Comptoir des Fontes Hématites after August, is now showing some hesitation. The price of 270 francs at producing works in the north of France is considered as likely to take business against British competition. This is a low price, especially as these works are only a short distance from seaports. British East Coast hematite, mixed numbers, is quoted now at about 310 to 315 francs in French northern ports.

Orders booked in July by the Comptoir des Fontes Hématites, which goes out of existence Aug. 31, totaled more than in June.

**Semi-Finished Steel.**—This market is active, especially for export, and a rise of 5 francs per ton is reported on mild steel products, which are now quoted f.o.b. Antwerp, per metric ton, as follows:

	Francs (French)
Ingots .....	300 to 305
Blooms .....	315 to 320
Billets .....	325 to 330

Delivery is becoming extended and is now not less than three months.

**Beams.**—Although the present demand for beams is not strong, the Comptoir Sidérurgique will not book ahead beyond October, which would indicate a belief that there will be a rise of prices after the holidays.

**Rails.**—A rail proposition from several tramway companies, which have agreed upon common specifications, is now being considered. The base price for rails of 20 kg. and heavier is still 500 francs.

**Sheets.**—Delivery is now two months for heavy and medium sheets and three months for light sheets. The Comptoir des Tôles has now entirely discontinued paying bounties on its products, which are firm and tending to rise.

**Rolled Merchant Products.**—Demand is good, both in the inland market and for export. Quotations range from 435 to 445 francs at producing works in Lorraine or in the East, 5 francs more than last week. Delivery is not under three months and in some cases it reaches five months for medium and small specifications.

**Steel Wire.**—Demand is better, at an average price of 460 francs.

**Castings.**—Improvement continues, particularly at works making agricultural machinery. Prices, however, remain low.

**Coke.**—French collieries of the Nord and Tas-de-Calais have agreed to sell to the Société des Cokes de Hauts-Fourneaux, from Aug. 10 to Oct. 31, metallurgical coke at 95 francs at ovens and coking slacks at 67 francs at mines. These are to be pooled with German cokes, the price on which has been maintained at 97 francs, Franco-German frontier, for September.

## GERMAN MARKET ACTIVE

### Prices Mounting Rapidly—Present Scale Scheduled for Ten Days Only—Still Below World Prices (By Cable)

BERLIN, GERMANY, Sept. 2.

IRON and steel market is active, with prices going rapidly upward. The home demand is enormous. The iron industry union henceforth will fix prices according to dollar exchange, instead of according to mark production cost.

Foundry iron No. 1, from Sept. 1 to Sept. 10, is priced at 24,491 m. per metric ton (\$19.28 per gross ton, at 7½c. per 100 m.). Other grades of pig iron have been raised proportionately, so that the average is now about 375-fold pre-war rates.

The Steel Syndicate has raised ingots to 27,530 m. (\$21.68); bars to 37,020 m. (1.30c. per lb.); sheets exceeding 5 mm. (25½ United States gage) to 41,580 m. (1.46c. per lb.); other items proportionately.

Prices at current exchange are still below world market prices and new increases are probable Sept. 10 unless the mark meanwhile makes a big recovery.

### Electric Alloy-Atlas Crucible Merger Plans Progressing

YOUNGSTOWN, Sept. 4.—Final details of the combination of the Electric Alloy Steel Co., plant of which is at Charleroi, Pa., and the Atlas Crucible Steel Co., Dunkirk, N. Y., are now being worked out, according to Louis J. Campbell, president of the former, who a short time ago was elected chairman of the Atlas company. Financing the merger has been completed, Mr. Campbell says, and a meeting of the stockholders of the Electric Alloy Steel Co., will be called, probably late this month, to ratify the amalgamation.

### New Honorary Member of Steel Treaters

Professor Henry LeChatelier, Paris, France, has been elected to honorary membership in the American Society for Steel Treating. The celebration of the 50th anniversary of his scientific career was recently observed in Paris, and at that time Professor LeChatelier was notified and accepted his election as an honorary member. The other honorary members of the American Society for Steel Treating are:

Sir Robert Hadfield, Bart., F.R.S., London, England; Albert Sauveur, Sc.D., Cambridge, Mass.; Edward DeMille Campbell, Sc.D., Ann Arbor, Mich.; John Alexander Mathews, Sc.D., New York City; Elwood Haynes, B.S., Kokomo, Ind.

### Chicago Building Falling Off

Building permits issued in Chicago in August showed a decline as compared with July. Permits were granted for 1048 buildings, fronting 30,382 ft. and involving \$17,919,950, as against 1144 permits involving 33,074 ft. of frontage and \$16,214,300 for the previous month. While the cost total is greater than for July, when the first decline in permits was noted, it falls nearly \$10,000,000 short of the total estimated cost for permits issued in June. Taking out a single permit for the Belden Hotel covering \$4,000,000, the August figure would be considerably less than that for July.



## NON-FERROUS METALS

### The Week's Prices

Cents Per Pound for Early Delivery

	Copper, New York		Straits	Lead		Zinc	
	Lake	Electro-lytic*	Tin New York	New York	St. Louis	New York	St. Louis
Aug.							
30	14.12 1/2	13.75	32.62 1/2	5.90	5.55	6.60	6.25
31	14.12 1/2	13.75	32.50	5.90	5.55	6.60	6.25
Sept.							
1	14.12 1/2	13.75	32.62 1/2	5.90	5.55	6.60	6.25
2	14.12 1/2	13.75	....	5.90	5.55	6.60	6.25
5	14.12 1/2	13.75	32.50	5.90	5.55	6.60	6.25

\*Refinery quotation.

### New York

NEW YORK, Sept. 5.

The Labor Day holiday has interfered with the general course of the markets and only light business is reported in any of the metals. In all of them, however, the price situation is firm.

**Copper.**—Toward the close of last week some sellers reported an increase in inquiries for electrolytic copper, but because of the holiday these have not yet resulted in orders. Moderate sales were made last week. While there is no change in the price situation the tone is, if anything, firmer, and quotations are steady at 13.75c., refinery, or 14c., delivered, for the remainder of the year. Some sellers are either out of the market or asking at least ¼c. higher. Lake copper is steady at 14.12½c., delivered.

**Copper Averages.**—The average price of Lake copper for the month of August, based on daily quotations in THE IRON AGE, was 14.12½c., New York. The average price of electrolytic copper was 13.74c., refinery, or 13.99c., delivered.

**Tin.**—The market for Straits tin has been exceedingly quiet and devoid of feature. The moderate sales referred to as having been made a week ago to-day, Aug. 29, amounted to about 300 tons, mostly near future delivery. On Aug. 31 there was some pressure to sell, metal for any position being offered at 32.50c., but buyers were not interested and the market was stagnant. Other days of the week, including to-day, have been extremely inactive. In the entire week, futures have been neglected. Spot Straits tin to-day was quoted at 32.50c., New York, and the London market stood practically the same as a week ago at £159 10s. for spot standard, £159 17s. 6d. for future standard and £160 per ton for spot Straits. Deliveries into consumption during August are returned as 4150 tons, with 2166 tons in stock and 640 tons landing on Aug. 31. Imports for the first eight months this year have been 3825 tons as against 12,978 tons for the same eight months last year.

**Lead.**—The market is quiet with a fairly steady demand at unchanged prices. For September delivery the quotation of the leading interest is 5.70c., St. Louis, or 5.90c., New York, with the outside market at 5.55c., St. Louis, or 5.90c., New York, which we quote as the market.

**Zinc.**—The general situation is unchanged with only a moderate demand and no particular pressure to sell. Prime Western is quoted firm at 6.25c., St. Louis, and 6.60c., New York, as a minimum, with some sellers asking 6.30c., St. Louis, and 6.65c., New York. There is some uneasiness regarding the ore situation in the West, due to lack of cars and inability of railroads to transport ore or even coal. Equipment is also reported as very bad on some railroads in the ore district. If this situation continues it will interfere with production.

**Antimony.**—Wholesale lots for early delivery are quoted unchanged at 5.37½c. per lb., duty paid, New York.

**Aluminum.**—Virgin metal, 98 to 99 per cent pure, in wholesale lots for early delivery, is quoted by the

leading interests at 19.10c., f.o.b. plant, with importers offering the same grade from foreign producers at 17.75c. to 18c., per lb., duty paid, New York.

**Old Metals.**—Prices are practically stationary but the tendency of the market seems better. Dealers' selling prices are as follows:

	Cents Per Lb.
Copper, heavy and crucible	13.50
Copper, heavy and wire	12.75
Copper, light and bottoms	11.25
Heavy machine composition	10.50
Brass, heavy	8.25
Brass, light	6.50
No. 1 red brass or composition turnings	9.00
No. 1 yellow rod brass turnings	7.50
Lead, heavy	5.00
Lead, tea	4.00
Zinc	3.75

### Chicago

Sept. 5.—In a very quiet market tin has advanced slightly and spelter has declined. Among the old metals zinc has advanced. We quote, in carload lots, lake copper, 14.25c.; tin, 33.50c. to 34c.; lead, 5.65c.; spelter, 6.25c.; antimony, 7c., in less than carload lots. On old metals we quote copper wire, crucible shapes and copper clips, 11c.; copper bottoms, 9.25c.; red brass, 8.75c.; yellow brass, 6.75c.; lead pipe, 4.50c.; zinc, 3.75c.; pewter, No. 1, 20c.; tin foil, 22.50c.; block tin, 26c., all buying prices for less than carload lots.

### St. Louis

SEPT. 5.—Lead was easier for the week, while slab zinc held steady at unchanged prices. We quote: Lead, 5.60c., car lots, against 5.65c. to 5.70c. last week; slab zinc, 6.25c. On old metals we quote: Light brass, 3.50c.; heavy red brass and light copper, 7c.; heavy yellow brass, 4c.; heavy copper and copper wire, 7.50c.; zinc, 2c.; lead, 3c.; pewter, 15c.; tin foil, 16c.; tea lead, 2c.; aluminum, 9c.

British living costs are dropping. The July excess over 1914 is given as 81 per cent, against 84 per cent in June. The reduction is ascribed entirely to reduction in the price of potatoes.

## COMING MEETINGS

### September

**American Engineering Council.** Sept. 8 and 9. Executive board meeting, Boston. Report on three-shift day in industry. Secretary, L. W. Wallace, 719 Fifteenth Street, N. W., Washington.

**Association of Iron and Steel Electrical Engineers.** Sept. 11 to 15, inclusive. Annual convention, New Auditorium, Cleveland. Secretary, J. F. Kelly, 513 Empire Building, Pittsburgh.

**National Exhibition of Chemical Industries.** Sept. 11 to 16. Grand Central Palace, New York.

**American Electrochemical Society.** Sept. 21, 22 and 23. Fall meeting, Windsor Hotel, Montreal, Canada. Secretary, Dr. Colin G. Fink, Columbia University, New York.

**American Institute of Mining and Metallurgical Engineers.** Sept. 25 to 29. Pacific Coast meeting, Engineers' Club, San Francisco. Secretary, F. F. Sharpless, 29 West Thirty-ninth Street, New York.

### October

**American Society for Steel Treating.** Oct. 2 to 7. Convention and exposition, General Motors Co. Building, Detroit. Secretary, W. H. Eisenman, 4600 Prospect Avenue, Cleveland.

**Society of Industrial Engineers.** Oct. 18 to 20. McAlpin Hotel, New York. Secretary, George C. Dent, 327 South LaSalle Street, Chicago.

**American Gear Manufacturers' Association.** Oct. 9, 10 and 11. Semi-annual meeting, Chicago. Secretary, F. D. Hamlin, 4401 Germantown Avenue, Philadelphia.

## COPPER USE INCREASES

### Automobile Industry Will Require 30,000,000 Pounds More This Year Than in 1921

Approximately 100,000,000 lb. of copper will be utilized this year in the manufacture of automobiles in the United States, according to a survey just completed by the Copper and Brass Research Association. This is an increase of 30,000,000 lb. over 1921, and is about 750,000 lb. more than for 1920, in which year the automobile industry consumed 7.63 per cent of the total copper production.

Commenting on the use of copper in the automotive industry, the survey says in part:

"In pre-war days, particularly since the time when the automobile definitely emerged from the luxury class, the demand was in excess of the supply. Consequently, there was practically no incentive to cheapen material costs; and copper, brass and bronze were widely used in construction, where their properties, according to the best principles of machine design, established by generations of engineering experience, made them of service.

"During the war years, an abnormal condition arose. The price of copper increased, its use was restricted to non-essential industries, and the automobile manufacturer was forced to substitute inferior metals.

"In 1919, with removal of war-time restrictions, copper was still relatively high, and the automobile manufacturer continued this practice of substitution. During the period of inflation after the armistice there was a tremendous increase of manufacturing facilities, in order to keep up with the increasing demand for automobiles.

"Then came the 'buyers strike' in 1920. The demand for automobiles dwindled, and in an effort to revive sales, manufacturer vied with manufacturer in successive price cuts.

"Under insistent pressure to lower costs, automobile manufacturers turned their attention first to the more expensive metal, copper, and carried still further the principle of substitution, first generally established during the war years.

"Substitution took many forms, among them being sheet-iron water tanks in place of brass or copper; malleable or cast-iron water line fittings in place of brass; cast-iron carburetor bowls in place of brass; die-cast babbitt main bearings and crank pin bearings in place of bronze-backed babbitt.

"Other substitutions were cast iron bushings in place of bronze in camshaft bearings, rocker arm bearings, spring eyes, shackle bolts, brake equalizers, etc. (in many cases, there are no bushings at all); cut-steel or aluminum alloy small gears, for pump drive, timer shaft, etc.; cast iron water-pump casing and impeller in place of bronze or brass; aluminum or pressed steel hub caps in place of nicked brass; aluminum, enameled iron, or sherardized steel windshield trim, body trim, hardware and hood trim; steel latches in place of brass; steel screws, nuts and bolts in place of brass; malleable or cast iron special fittings such as caps, covers, plugs, glands, control links, in place of cast brass."

### New Cement Plants in Alabama

BIRMINGHAM, Ala., Sept. 5.—The Phoenix Portland Cement Co., Nazareth, Pa., has purchased 80 acres of limestone-laden land from the Sloss-Sheffield Steel & Iron Co., contiguous to the latter's by-product coking plant in North Birmingham, and is assembling materials for construction of a 1,500,000-barrel cement plant to cost over \$2,500,000 and scheduled to be completed by next May. Contracts for the machinery have been awarded as follows: Converters to the Worthington Pump & Machinery Co.; driers and kilns to the Vulcan Iron Works, Wilkes-Barre, Pa.; tube mills to the Traylor Engineering & Mfg. Co., Allentown, Pa.; electrical equipment to the General Electric Co.; locomotive cranes to the Orton & Steinbrenner Co., Huntington, Ind.; traveling cranes to the Champion Engi-

neering Co., Kenton, Ohio; Bradley Hercules mills to the Bradley Pulverizer Co., Allentown, Pa.

The Lehigh Portland Cement Co. is assembling materials for rush work on construction of a 1,000,000-barrel plant on a tract of 300 acres of limestone-laden land in the vicinity of the Alabama By-Products Co. coking plant in East Birmingham and very close to the plant being built by the Phoenix Portland Cement Co. of Nazareth, Pa.

### Russian Manganese Ore for Germany

According to reports from Kharkoff, the concession commission in the Ukraine recently examined various applications from foreign firms for concessions. One leading foreign firm submitted an offer for the leasing of the iron ore mines at Kholaczewskie, in the basin of the Krivoi-Rog, but the commission refused to grant a concession on the ground that the iron ore mines can only be leased if blast furnaces are operated. The German Mining Association of Essen—the Berk und Hüttenwerke—is reported to have been more successful. After protracted negotiations with the Ukraine commission in Berlin, the association is said to have arranged for the annual supply of a large quantity of manganese ore in return for the delivery to the Ukraine Mining Administration of materials for the working of the mines, including cables, pumps, etc. The German association will only accept the delivery of high-grade ore.

### Alabama Coal Prices

BIRMINGHAM, Ala., Sept. 5.—Governor Kilby has, through Fuel Administrator Roy R. Cox, announced the following maximum prices for coal from Alabama mines: Big seam, run of mine \$2.60, domestic lump \$3.45; Pratt, Jagger and Corona group, run of mines \$3, domestic lump \$4.45; Cahaba and Black Creek group, run of mine \$3.60, domestic lump, \$5.20; Montevallo and Climax group, run of mine \$4, domestic lump \$6 per ton. These are maximum prices for the fall and winter. The retail prices are lower than at this time last year and the steam coal prices are regarded as reasonable, the extra mine wage of 20 per cent effective Sept. 1 considered.

### Will Spend \$12,000,000 in Dams

BIRMINGHAM, Ala., Sept. 5.—The Alabama Power Co. has asked permits of the Federal Power Commission for the construction of four dams on the Tallapoosa River in Alabama, a non-navigable stream. Work will begin shortly after permits are granted and will involve \$12,000,000, the power created to be 140,000 hp. The company also announces the construction at once of a high tension transmission line from Mitchell dam to the Georgia State line at Lanet, where a large group of cotton mills is located. This is to cost \$1,000,000. Mitchell dam, which will generate 120,000 hp., is expected to be completed by next March and the power is practically bidden for already.

### Utilizing Russian Scrap Iron and Steel

Owned jointly by the Soviet Government and a German combine, a German-Russian company called Deutsch-Russische Metall-Gesellschaft, or Derumetall, has been formed to collect, purchase and utilize the immense quantities of scrap iron in Russia. Several shipments have already been made to Germany. It is estimated that there are in Russia over 3,000,000 tons of scrap iron, of which nearly 500,000 tons is in Petrograd, and 200,000 tons at the Black Sea ports. The company will for the moment deal only with the latter, as the cost of bringing the scrap from the interior would be too high to leave a profit. From these easily accessible supplies the Soviet Government, it is estimated, will receive about ten million gold rubles (£1,000,000 or \$4,865,000).



## PERSONAL

J. N. Garfield has been appointed district manager for Ohio of the Isthmian Steamship Lines, a subsidiary of the United States Steel Corporation, which operates its ocean boats, and has opened an office at 1235 Guardian Bldg., Cleveland. This is the second district office to be opened by the Isthmian Lines. An office was established recently by Mr. Garfield in Buffalo, which has now been placed in charge of W. C. Shields, Jr.

John D. Wise, who for the past year has had charge of the foundry school at the University of Illinois, has returned to the sales department of the Osborn Mfg. Co., Cleveland, and will devote his attentions to sales engineering work in connection with foundry equipment.

Samuel W. Hilt, formerly district manager of sales, Camden Forge Co. at New York, has been appointed manager of sales of Pennsylvania Steel Export Co., Philadelphia, effective Sept. 1.

D. J. Felkel, formerly superintendent of the Covington, Va., blast furnace plant of the Low Moor Iron Co., is now superintendent of the blast furnace department of the Cia. Fundidora de Fierro y Acero de Monterrey, S. A., Monterrey, N. L., Mexico.

Lawrence M. Keeler, of the Whitin Machine Works, manufacturer of textile mill machinery, Whitinsville, Mass., sailed from New York the past week for Havre, France, on a business trip through France and Spain.

A. G. Douglas, chief engineer, and W. H. Mortlock, production manager, Hoskins Iron & Steel Co., Ltd., Lithgow, New South Wales, Australia, recently visited the plant of the St. Louis Coke & Chemical Co., Granite City, Ill. These gentlemen are visiting a number of representative iron and steel plants in this country and Canada for the purpose of familiarizing themselves with American practice.

Robert H. Libke, until recently a member of the sales force of the E. L. Essley Machinery Co., Chicago, has been appointed manager of the Chicago office of the Toledo Machine & Tool Co., Toledo, Ohio, manufacturer of presses and squaring shears, succeeding Edward Brucker. Mr. Libke will have his office in Machinery Hall, corner of Clinton Street and Washington Boulevard.

H. J. Swanson, formerly sales manager Detroit Machine Tool Co., Detroit, Mich., has been appointed manager of the Peerless Machine Co., manufacturer of hack saws and metal shaping saws, Racine, Wis.

Robert N. Todd, for the past two years in the New York sales office of the Pawling & Harnischfeger Co., Milwaukee, Wis., cranes, hoists and excavators, has resigned to become associated with Walter Price, Philadelphia, agent for the Ford Motor Co. Mr. Price was formerly Eastern sales manager of the Pawling & Harnischfeger Co. Mr. Todd was previously with the Bethlehem Steel Co.

Thomas M. Rees, Jr., for the past ten years in the Pittsburgh office of Motch & Merryweather Machinery Co., has been appointed Pittsburgh district sales representative of Treadwell Engineering Co., Easton, Pa., and will assume his new duties Oct. 1.

J. Brynmor Hill, director Gorsienon Steel & Tinplate Works, Swansea, Wales, who spent several weeks in this country in visiting steel plants, was a passenger on the Majestic, which sailed from New York, Aug. 26.

W. C. Allen, who has been in charge of the Chicago branch of the Black & Decker Mfg. Co., Towson Heights, Baltimore, for the past year, has been promoted to sales supervisor. R. S. Mitten has been appointed to fill the vacancy caused by the promotion.

Owen K. Parmiter, metallurgist, Firth Sterling Steel Co., McKeesport, Pa., was the speaker at the monthly meeting of Pittsburgh Chapter, American Society for Steel Treating at the William Penn Hotel, Pittsburgh, Tuesday evening, Sept. 5. His subject was "Stainless Steels."

John W. Porter, vice-president Alabama Co., who has been resting from his duties for several weeks, has returned to Birmingham and is again at his desk fully restored to normal health.

Russell E. Fox, formerly connected with the Philadelphia sales office of the American Sheet & Tin Plate Co., is now with N. & G. Taylor Co., manufacturer of tin plate, Philadelphia, as production manager.

Alfred J. Lewis has been appointed Cleveland district representative, Pittsburgh Grinding Wheel Co., Rochester, Pa., with offices at 208 Fountain Building, West Second Street, Cleveland. Mr. Lewis has had more than 15 years' shop experience with Babcock & Wilcox Co., Barberton, Ohio; American Steel Foundries, Alliance, Ohio; Ferro Machine & Foundry Co., Cleveland; Detroit Steel Casting Co., Detroit, and the Otis Steel Co., Cleveland.

## OBITUARY

EDWIN NEWTON OHL, one of the organizers of the Cherry Valley Iron Co., with a blast furnace at Leetonia, Ohio, and who was active in other iron and steel companies, died in New York, Sept. 3. He was born in Ohltown, Ohio, 72 years ago. For the past 30 years he had made his home in Pittsburgh. He was a director of the Pittsburgh Radium Co. and president and director of the American Roller Bearing Co. He also was a director of the Keystone National Bank, Pittsburgh, the Amortization Mortgage Co. and the Republican Casualty Co.

JAMES S. HUMBERD, of Pittsburgh, at one time general manager Westinghouse Electric & Mfg. Co., East Pittsburgh, died in Atlantic City, Sept. 2, while on a visit at that resort. He was born in Cumberland, Md., 60 years ago and was a graduate of Washington and Jefferson College, Washington, Pa. Prior to becoming affiliated with the Westinghouse company, Mr. Humbird for a number of years was general manager Western Electric Co., Chicago.

JOHN T. MCHUGH, assistant superintendent of the Farrell, Pa., plant American Steel & Wire Co., died at his home in Farrell, Aug. 30. He was 65 years old and had been identified with the Sharon wire mills for the past 22 years. He had been identified with the wire industry for 55 years, having been an early associate, in the mills of the old National Wire Co., New Haven, Conn., of James A. Farrell, now president United States Steel Corporation, when the latter was a wire drawer. When they went West together, both went to work in the Braddock, Pa., mills of the American Steel & Wire Co. Before going to Sharon, Mr. McHugh was employed in the nail plant which the American Steel & Wire Co. once operated in Salem, Ohio.

HERBERT S. DORNBERGER, professor structural engineering, Carnegie Institute of Technology, who also was chief engineer in the Pittsburgh district for the Truscon Steel Co., Youngstown, Ohio, died at the Mercy Hospital, Pittsburgh, Aug. 30. He was 88 years old. He was graduated from Gettysburg College and for two years was a member of the faculty of that institution. Later he took a post-graduate course at Massachusetts Institute of Technology.

EDMUND L. FRENCH, a director of the Crucible Steel Co. of America and manager of its Syracuse plants, died suddenly from heart disease Thursday afternoon, Aug. 31, at Tully Lake Park. He was 52 years of age.

## British Iron and Steel Market

### United States Still Buying British Pig Iron — British Steel in Better Demand, Due to Continental Exchange Chaos (By Cable)

LONDON, ENGLAND, Sept. 5.

Pig iron is firm on further sales on American account, including 5000 tons of West Coast hematite. Further shipments of this material are expected. Canada is buying Cleveland pig iron. Home trade consumers are contemplating entering into contracts extending over the end of the year. Cleveland makers are well booked up and an increased output is expected. Seven or eight furnaces, it is said, will be re-lighted. There is an improved demand for East Coast hematite, but stocks are still heavy.

Steel business is increasing. Northeastern works have secured good orders for shipbuilding materials. Prices are thought to be too low and advances are anticipated if substantial demand develops. The Clyde shipbuilding output for August was 53,123 [gross register] tons.

Variations in exchange rates affect the Continental position. Belgian works have accepted joist (beam) orders at £6 15s. (134c. per lb.) f.o.b., October, November, shipments, but the general quotation is higher. China and India are buying moderately. Belgian merchant bars have been sold at £9 7½s. (1.87c. per lb.) cost and freight to China. Three-eighths-in. plates have been sold at £8 2½s. (1.62c. per lb.) cost and freight to India.

Tin plate is steady but quiet. The oil plate orders [for Eastern markets, reported last week at 250,000 boxes] have been increased to 350,000 boxes. Exports generally are quiet, though there is a fair demand from Canada and some business is reported. Home trade buying is fairly steady. Obi sizes are being done at 19s. (\$4.24) basis, f.o.t.

Canada is buying Welsh black plate. Galvanized sheets are quiet and black sheets are dull. Japan is inquiring for thin gages and sheets for galvanizing.

We quote per gross ton, except where otherwise stated, f.o.b. maker's works, with American equivalent figured at \$4.46 per £1, as follows:

Durham coke, delivered	£1 7s.	\$6.02
Cleveland No. 1 foundry	4 15	21.19
Cleveland No. 3 foundry	4 7½ & £4 7½*	19.51 & \$19.51*
Cleveland No. 4 foundry	4 5 to 4 7	18.96 to 19.40
Cleveland No. 4 forge	4 2½ to 4 5	18.40 to 18.96
Cleveland basic	4 0	17.84
East Coast mixed	4 9 to 4 10*	19.85 to 20.07*
Ferromanganese	15 0	66.90
Ferromanganese*	14 10 to 14 15	64.67 to 65.79
Rails, 60 lb. and up	7 15 to 8 15	34.57 to 39.03
Billets	7 2½ to 8 0	31.78 to 35.68
Sheet and tin plate bars, Welsh	7 7½	32.89
Tin plates, base box	0 19¼ to 0 19½	4.29 to 4.32
		C. per Lb.
Ship plates	9 0 to 9 10	1.79 to 1.89
Boiler plates	11 10 to 12 10	2.29 to 2.49
Tees	9 5 to 10 5	1.84 to 2.04
Channels	8 10 to 9 10	1.69 to 1.89
Beams	8 5 to 9 5	1.64 to 1.84
Round bars, ¾ to 3 in.	9 5 to 10 0	1.84 to 1.99
Galvanized sheets, 24 g.	16 5 to 16 10	3.23 to 3.28
Black sheets	12 0	2.39
Steel hoops	12 0 & 12 5*	2.39 & 2.44*
Cold rolled steel strip, 20 g.	23 2½	4.60
Cotton ties, Indian specifications	15 0	2.99

\*Export price.

### Continental Prices, All F. O. B. Channel Ports, Delivery as Specified

No. 3 foundry pig iron:		
Belgium, October	£4 2½s.	\$18.40
Luxemburg, October	4 2½	18.40
France, October	4 2½	18.40
Billets:		
France, Oct., Nov.	5 10 to £5 15s.	24.53 to \$25.65
Luxemb'g, Oct., Nov.	5 10 to 5 15	24.53 to 25.65
Lorraine, Oct., Nov.	5 10 to 5 15	24.53 to 25.65
Wire nails (keg basis):		
Germany	0 14½	3.23
Belgium	0 20½	4.57
Wire rods, 5 mm. (0.2 in.):		
Belgium	7 5 to 10 7½	32.34 to 46.27

Angles:					C. per Lb.
Belgium, September	7 7½				1.47
Tees:					
Belgium	8 5				1.54
Merchant bars:					
Belgium, Nov., Dec.	7 7½ to 7 12½				1.47 to 1.52
Luxemb'g, Nov., Dec.	7 7½ to 7 12½				1.47 to 1.52
France, Nov., Dec.	7 7½ to 7 12½				1.47 to 1.52
Germany, Dec.	7 15 to 8 0				1.54 to 1.59
Channels:					
Belgium	7 10 to 7 12½				1.50 to 1.52
Joists (beams):					
France, Oct., Nov.	7 0 to 7 2½				1.39 to 1.42
Belgium, Oct.	7 0 to 7 2½				1.39 to 1.42
Luxemburg, Oct.	7 0 to 7 2½				1.39 to 1.42
¾-in. plates:					
Germany, Nov., Dec.	8 0				1.53
Belgium, Sept., Oct.	7 10 to 8 0				1.49 to 1.59
Luxemb'g, Oct., Nov.	7 17½				
France, not offered.					
½-in. plates:					
Germany	9 0				1.79
No. 8 gage wire:					
Belgium, August	14 10½				2.89

### Coal Exports to America and Canada—American Pig Iron Buying—Irish Urged to Buy Direct

LONDON, ENGLAND, Aug. 24.—America is still booking large quantities of coal here, mostly from Wales, with the result that prices of the latter have recently advanced 1s. a ton. There has, however, been a reduction in shipping freights of 5s. a ton. Canada is also still showing a fair amount of interest, and has booked some orders for Welsh anthracite coal.

Conditions in the pig iron market have not shown much improvement, though sales continue to be made on American account. The Middlesbrough market has been closed this last week owing to holidays, so that it is difficult to judge the position accurately, but there is no doubt that stocks of pig iron are accumulating, and that makers would be glad to get rid of them even at a low price. Export demand, apart from that of America is still very dull, and home trade consumers are not disposed to enter into any forward commitments during the present uncertainties. In view of this position it is, therefore, rather obscure as to why Cleveland producers should fix an export premium for foundry pig iron. Nevertheless they have done so, and some makers are now asking 90s. for No. 3 G. M. B. for shipment, while they are willing to accept 87s., and possibly less, for the same material for use in the home trade. Hematite is a very weak market, and East Coast Mixed Numbers have sold at 88s., and it is quite possible to place substantial contracts at an even lower figure. At one time it was thought that Italy might be coming in to buy, but the recent disorganization of the whole of the continental exchanges has naturally precluded buying from those quarters.

In finished iron and steel there has been a little more business, India and South America in particular having recently placed some good orders for plates and shapes, but Australia is still the mainstay of the export markets, though even here no important tonnages are mentioned. Prices have not been changed, but there are some works who are disposed to accept less money for the business going, while others prefer to pass the business by rather than cut the price by so much as 2s. 6d. a ton. A small demand has set in for boilers, both for land and submarine purposes, which has enabled Yarrow & Co., of Scotstoun, Glasgow, to reopen their plant, which has been closed down since last November. These orders have been taken for the Far East.

Harland & Wolff are getting busier at Belfast, having received instructions to resume work on a number of vessels which was on hand, and had been suspended owing to the depression in the shipping trade. It is stated that already this year the production on the Lagan is greater than that for the whole of last year.

It is interesting to note the attitude of the Irish Free State as regards iron and steel business. The department of Commerce of that country is sending out communications to industrialists and business men in Belgium, urging them to trade directly with the buyer in Ireland rather than make use of an intermediary in England. Of course, the means of transport between Belgium and Ireland are few and expensive, and there is consequently quite a good price margin in favor of firms here which make purchases in bulk in Belgium, and sell in small parcels throughout the British Isles.



# Machinery Markets and News of the Works

## OUTLOOK MORE PROMISING

### More Activity in Machine Tools Is Indicated for September

#### Price Advances Are Expected to Bring Action on Much Pending Business

With some of the uncertainty removed from the industrial situation by the virtual settlement of the bituminous and anthracite coal strikes, it is predicted that the machine-tool trade will feel the stimulus of business recovery during September. Another factor tending toward the more liberal buying of machine tools is the tendency now shown by manufacturers to advance prices in keeping with rising costs. For example, it is reported from one or two centers that sales of turret lathes have taken a spurt in anticipation of price advances which become effective this month.

A prominent line of boring mills has been advanced 10 per cent, effective Sept. 16; a manufacturer of engine lathes and shapers has also announced a price advance approximating 10 per cent; a well-known line of shapers and a well-known line of small lathes have been advanced. Other advances are predicted and many will probably go into effect before Oct. 1.

Announcement of these various price advances is expected to have the effect of closing up much of the business that has been pending. Railroad buying in particular is expected to increase. At Chicago it is

expected that the Chicago, Burlington & Quincy will buy on its recent large list within a week or two. The Chicago, Milwaukee & St. Paul may close on a small list, and the list of the Chicago, Rock Island & Pacific is still pending, and action on this and remaining requirements of the Atchison, Topeka & Santa Fe would not be surprising in view of the rising prices of machine tools.

A good deal of the past week's activity took place in the automobile manufacturing districts. The Studebaker Corporation, South Bend, Ind., bought additional piston turning equipment, and the International Harvester Co. bought a number of tools. The Nash Motor Co. is expected to place orders shortly for special purpose machinery.

The American La France Co., Elmira, N. Y., has bought a small list of tools, including five or six turret lathes; the Ternsted Mfg. Co., Detroit, has bought 70 small punch presses; the Lima Locomotive Co., Lima, Ohio, is expected to place orders for about 25 tools within a week or so. Pickands, Mather & Co., Cleveland, has issued a list calling for bids on nine machines for a mine at Ely, Minn.

In New England not much buying has been done, but there is an inquiry for 20 used presses, and another inquiry calls for bending and rolling equipment. The New York market has been quiet.

There is more activity in cranes, and prominent among current inquiries is one from the Pennsylvania Railroad for 12, most of them for heavy loads.

## New York

New York, Sept. 4.

QUIETNESS still rules in this district, undoubtedly accentuated this week by the usual pre-holiday dullness. In general, sellers of used tools state that August was a fairly satisfactory month and they look forward to about the same satisfactory conditions in September. One dealer here reports the sale of two large tools the past week. Sellers of new machines, on the other hand, feel that but little improvement in the present dullness is to be expected until the strike situation clears up. In some types of used tools a growing scarcity of machines in good condition is said to exist. Such a scarcity, should it become more marked, will undoubtedly force some buyers, who have been satisfying requirements with used tools, into the new machinery market. The General Electric Co. is still buying, one or two tools at a time.

Few purchases of cranes are noted this week but several good inquiries are current. One of these, which is the largest that has appeared in this district for some time, is from the Eastern Region of the Pennsylvania Railroad, Philadelphia, and calls for bids on two 250-ton, 80-ft. 11-in. span double trolley overhead traveling cranes; one 60-ton, 104-ft. 4-in. span, double trolley overhead crane; one 60-ton, 90-ft. 9-in. span, double trolley overhead crane; two 25-ton, 79-ft. 9-in. span, single trolley overhead cranes; and six 15-ton, 77-ft. 6-in. span, single trolley overhead traveling cranes. There is also a request for bids from the Board of Harbor Commissioners, Municipal Building, Wilmington, Del., closing Sept. 8, which includes equipment for the Wilmington Marine Terminal. This tender includes three 20-ton, 50-ft., 60-ft. and 70-ft. booms, steam locomotive cranes; three 2½-ton, light duty, electric portal cranes; four 2-ton capacity portable electric dock winches; six electric tractor trucks with spare batteries; three load carrying trucks; 50 trailers for the electric tractors; and a 200-ton railroad track scale.

Among recent sales are:

Ed. Edinger Co., Cedar Rapids, Iowa, a 5-ton, 40-ft. span, 3-motor overhead traveling crane from the Northern Engineering Works.

Parke Davis & Co., Detroit, Mich., a 12-ton, 35-ft. span overhead crane from the Northern Engineering Works.

Metropolitan Edison Co., Reading, Pa., a 10-ton, 1-motor crane from the Roeper Crane & Hoist Works.

American Ice Co., New York, a 5-ton, hand power crane from the Roeper Crane & Hoist Works.

The Hudson Wire Co., 62 North Water Street, Ossining, N. Y., has awarded a contract to the McClintic-Marshall Co., Pittsburgh, for a one-story plant, 100 x 150 ft., estimated to cost about \$50,000. Charles Royle heads the company.

The Montauk Mfg. Co., 841-43 Union Street, Brooklyn, manufacturer of talking machines, parts, etc., is planning for the installation of new equipment in its machine shop.

Parker Axles, Inc., Gotham National Bank Building, Fifty-ninth Street and Broadway, New York, will commence the immediate erection of the superstructure of its new one and two-story plant, 100 x 160 ft., at Poughkeepsie, N. Y., for the manufacture of automobile axles.

The Kewanee Boiler Co., 47 West Forty-second Street, New York, has filed plans for two one-story buildings, each 24 x 50 ft., on 141st Street, near Walnut Avenue, for local branches of the main factory at Kewanee, Ill.

The Car Lighting & Power Co., 61 Broadway, New York, has arranged for a preferred stock issue of \$1,000,000, the proceeds to be used for plant construction and expansion. The company will build an ice manufacturing plant, and will make extensions and improvements in existing ice manufacturing units.

The Electric Supply & Equipment Co., 103 Allyn Street, Hartford, Conn., will soon commence the erection of a new plant on Broadway, Albany, N. Y., four-stories, 40 x 65 ft., estimated to cost \$50,000.

The New York office of the American Lamp Co., recently mentioned in these columns, is at 30 Church Street. The officers are William H. Young, president; Walter L. Tremper, treasurer, and Harold A. Young, secretary. The company maintains a factory at Mianus, Conn.

The Utica Motor Car Co., Genesee Street, Utica, N. Y., is taking bids on a general contract for an addition to its service and repair works, estimated to cost about \$100,000. Linn Kinne, Mayro Building, is architect.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until Sept. 8 for oil pumps, wrenches and spares, as set forth in schedule 131; also for oil purifier, heater and spares, as specified in schedule 129; two oil separators and spares, schedule 130; and for six fuel oil heaters and spares, schedule 132, all for the Brooklyn Navy Yard.

Joseph Pearl binder, 1428 Bryant Avenue, New York, is taking bids for a one-story automobile service and repair building, 100 x 300 ft., on Westchester Avenue, estimated to cost about \$100,000. Charles Kieymborg, 2534 Marion Avenue, is architect.

The Air Reduction Sales Co., 342 Madison Avenue, New York, manufacturer of acetylene welding apparatus, etc., has tentative plans under consideration for the erection of a new plant at Buffalo.

The Baltimore & Ohio Railroad Co., division operating offices, St. George, S. L., has plans in progress for the electrification of the entire system of the Staten Island Rapid Transit Co., its subsidiary organization. The work will include power houses and substations, with electric equipment, lines, etc. E. W. Murray is manager of the subsidiary company.

The Rubel Coal & Ice Corporation, Glenmore Avenue, Ozone Park, Brooklyn, will commence the erection of a new two-story ice-manufacturing plant, 34 x 116 ft., on Ocean Avenue, Ozone Park, to cost about \$200,000 including machinery. Edward M. Adelson, 1778 Pitkin Avenue, Brooklyn, is architect.

Officials of the Texas Co., 17 Battery Place New York, have organized the Texas Producers' Co., as a subsidiary organization, capitalized at \$1,000,000, to handle production in the Northwestern part of the country. Following the securing of leases, etc., for which negotiations are said to be under way, refineries and distributing plants will be established. Headquarters will be at Denver, Col., and Casper, Wyo.

Excavations will be placed under way at once, for a one-story power house for the Teachers' College, Columbia University, New York, in connection with a new library building on 120th Street.

The Kovat & Knauber Iron Works, 800 Edgewater Road, New York, are making inquiries for an air compressor of about 100 cu. ft., electrically operated.

Power equipment, conveying apparatus and other mechanical equipment will be installed in the three-story plant, 45 x 100 ft., to be erected at Hopkins and Atlantic Avenues, Brooklyn, for the Great Atlantic & Pacific Tea Co., 150 Bay Street, Jersey City, N. J., estimated to cost \$65,000. L. S. Beardsley, 116 West Thirty-ninth Street, New York, is architect.

Fire, Aug. 30, caused by an explosion, destroyed a portion of the power house at the paperboard manufacturing plant of R. R. McEwan & Sons, Malapardis, near Morristown, N. J., with loss estimated at close to \$35,000. The plant will be rebuilt.

The City Commission, Jersey City, N. J., has authorized a bond issue of \$1,500,000 for the construction of a sewage disposal plant near Boonton, N. J., to include power equipment, electrical apparatus, mechanical gates, etc. Clyde Potts, 30 Church Street, New York, is consulting engineer.

The J. S. Mundy Hoisting Engine Co., 696 Frelinghuysen Avenue, Newark, has filed plans for a one-story building, 40 x 100 ft.

The Cole Motor Car Co., 1848 Broadway, New York, has acquired the works and business of the Wallace Motor Co., 894 Broad Street, Newark, including the service and repair department at 8 Green Street, which will be arranged as a direct factory branch of the main plant at Indianapolis.

Electrical and mechanical equipment, power apparatus, etc., will be installed in the new plant, 40 x 145 ft., to be erected at Blanchard Street and the Passaic River, Newark, by the Alcohol Products Co., now operating in this section. Fred A. Phelps, Union Building, Newark, is architect and engineer.

## Chicago

CHICAGO, Sept. 4.

ALTHOUGH new inquiries for machine tools are fewer, considerable pending business is being closed for the reason, no doubt, that buyers wish to have their orders entered before prices advance. Some lines of machines have already gone up and others are scheduled to advance in the near future. A notable spurt in sales of turret lathes preceded

an advance of a certain make which became effective Sept. 1. Orders are likewise being brought to a head in other lines which will go up the middle of this month. The King Machine Tool Co., Cincinnati, will advance boring mills about 10 per cent, effective Sept. 16. A Central Western manufacturer of engine lathes and shapers will also mark up prices about 10 per cent on Sept. 15. Among price changes already made may be mentioned an advance in shapers by the Ohio Machine Tool Co., which varied in percentage according to different sizes. The South Bend Lathe Works, South Bend, Ind., announces the discontinuance of its June 1 prices and the return to the quotations of March 7. This amounts to an advance averaging about 17 per cent.

No further railroad buying has taken place, but the Burlington is expected to buy against its pending machine tool lists within a week or two. The Santa Fe has given no indication that it would purchase the remainder of the list which was partially bought some time ago, but in view of the advancing tendency of machine tool prices, such action would not be surprising. It is also possible that the Chicago, Milwaukee & St. Paul will close for a small outstanding list and that the Rock Island may decide to buy certain equipment which it has been considering for several months. Among industrial companies the automotive concerns are the most prominent purchasers. The Studebaker Corporation has placed a second order for special piston turning lathes. The Nash Motor Co. is expected to close for considerable special purpose machinery for its Milwaukee plant some time this month. Among other classes of users, the International Harvester Co. has closed for four thread-milling machines, a number of turret lathes and several special purpose machines. From the standpoint of sales, August was a satisfactory month, in the case of one dealer being the best month this year and for others on a par with or slightly under July.

Whereas the Burlington has not yet taken action on its machine tools, it has commenced to place its crane equipment. An order has been given to the Whiting Corporation for two 125-ton electric overhead traveling cranes, each with 97-ft. 5½-in. span, one 125-ton hoist and one auxiliary 15-ton hoist. The Public Service Co. of Northern Illinois has awarded a 100-ton overhead electric traveling crane for a new power-house at Waukegan, Ill., to the Whiting Corporation.

The Shafer Bearing Corporation, 4500 Ravenswood Avenue, Chicago, manufacturer of automobile accessories, has purchased the plant of the All-American Truck Co., 6561 Grand Avenue, to provide for expansion. The property covers 8½ acres and includes a one-story building containing 66,000 sq. ft.

The Red Top Steel Post Co., 38 South Dearborn Street, Chicago, has purchased the factory property in Chicago Heights, Ill., formerly owned by the Chicago Pneumatic Tool Co., and in 1919 sold to the Giant Truck Corporation of Delaware.

Fire recently destroyed a two-story warehouse of A. M. Castle & Co., iron and steel jobber, Blackhawk and North Branch Streets, Chicago. The loss will exceed \$100,000, of which \$40,000 is represented by a hydraulic press which was destroyed.

The reported sale of 80 acres to the Ford Motor Co. in the Calumet industrial district of Chicago by the Chicago & Calumet Canal & Dock Co. has been emphatically denied by a representative of the latter company. Although agents of the Ford company have been looking over the property, no sale has been consummated.

The Pullman Co., 79 East Adams Street, Chicago, manufacturer of railroad cars, trucks, etc., is taking bids for a new one-story foundry, 300 x 500 ft., at Pullman, Ill., estimated to cost \$40,000, exclusive of equipment. Frank D. Chase, Inc., 645 North Michigan Avenue, is architect and engineer.

A vocational department will be installed in the new North high school to be erected on Twenty-fourth Street, Omaha, Neb., estimated to cost \$750,000, for which bids will be asked this month. John Latenser & Sons, Peters Trust Building, are architects.

The Hot Springs Water, Light & Power Co., Hot Springs, S. D., has plans under way for a new power house, to replace a generating plant recently destroyed by a flood. The installation will comprise two 450-kilowatt generators, water-wheel, pumping equipment and auxiliary machinery. The Hollister Engineering Co., Bankers' Life Building, Lincoln, Neb., is engineer.

Kang & Zeisler, South Schuyler Avenue, Kankakee, Ill., will soon take bids for a two-story and basement automobile



service and repair building, 81 x 145 ft., to cost about \$55,000. C. K. Henry, 219 Arcade Building, is architect.

The Quartermaster Department, Chicago General Intermediate Depot, Chicago, will take bids until Sept. 14 for one gasoline pump, as specified in circular 23-27 RS.

William Friscoll, Olivia, Minn., is completing plans for a new one-story machine shop. A list of equipment is also being arranged.

The W. H. Maze Co., Peru, Ill., manufacturer of metal specialties, has construction under way on a one-story addition, 75 x 140 ft., estimated to cost \$60,000.

A vocational department will be installed in the new two-story and basement high school, 96 x 120 ft., to be erected at Braham, Minn. G. L. Lockhart, Inc., 1643 University Avenue, is architect.

## Philadelphia

PHILADELPHIA, Sept. 5.

A TWO-STORY machine shop at 1528-48 North Fifth Street, to cost about \$42,000 will be erected by the James H. Billington Co., 113 Chestnut Street, Philadelphia, mill supplies.

The Philadelphia Electric Co., Tenth and Chestnut Streets, Philadelphia, has completed plans for additions to its power houses at American Street and Susquehanna Avenue, and on Ontario Street. Work has been commenced on two new power houses at other locations. W. H. Johnson, senior vice-president, is in charge.

Officials of the Baldwin Locomotive Works, 500 North Broad Street, Philadelphia, have organized the Cuba Locomotive & Machine Works, as a subsidiary organization, to construct and operate repair shops in Cuba.

Henderson Brothers, Twenty-fifth and Spruce Streets, Philadelphia, have awarded a contract to the J. H. Hunkle Co., Twenty-fifth and Delancey Streets, for a two-story automobile service and repair building, 40 x 118 ft., with one-story extension, 30 x 115 ft., estimated to cost about \$100,000.

The Fidelity Machine & Mfg. Co., 4015 Paul Street, Philadelphia, has construction under way on a new machine shop and mechanical works at 3936-40 Frankford Avenue to cost about \$70,000, including machinery.

The Pennsylvania Railroad Co., Broad Street Station, Philadelphia, is completing plans for the conversion of the engine house at its Altoona, Pa., shops, now being used as a freight car shop, into a locomotive repair works. Plans are also in preparation for new machine and erecting shops on the site of engine house No. 3. At the Juniata, Pa., shops, work will soon commence on a new machine shop and erecting works, 340 x 675 ft.; the present locomotive shops here will be extended and improved, including the installation of additional equipment. Plans have also been completed for a new three-story service and store house building, 60 x 400 ft., at the same point.

The Bureau of Supplies and Accounts, Navy Department, Washington, will take bids until Sept. 19 for four tractors for use at the Philadelphia Navy Yards, as set forth in schedule 127.

Thomas J. Luttrell, Philadelphia, operating a sheet-metal working and heating equipment shop at 3830 Market Street, has plans under consideration for a new one-story works.

The Hoffman Henon Co., Finance Building, Philadelphia, architects, have plans under way for a new automobile service and repair building, 50 x 160 ft., at 1229 North Broad Street, estimated to cost about \$200,000. The name of the owner will be announced later.

The General Asphalt Co., Land Title Building, Philadelphia, affiliated with the Royal-Dutch-Shell Co., will build a pipe line from its oil fields in the Mene Grande district, near Lake Maracaibo, Venezuela, to a distributing point on the Atlantic Ocean, estimated to cost about \$1,000,000, including pumping plants, pipe, and other mechanical equipment.

A high-pressure steam plant, electric generators, and auxiliary equipment, ice-making and refrigerating apparatus, and miscellaneous power equipment, will be installed in the new power plant to be constructed at the State Normal School, Trenton, N. J., for which bids on a general contract are being taken. The Commissioner of Education, State House, is in charge. Gilbert & Betelle, 546 Broad Street, Newark, N. J., are architects.

The Atlantic Woodworking Co., 2320 Fairmount Avenue, Atlantic City, N. J., has plans under way for a new two-story plant, 15 x 70 ft., on Island Road.

The Penn Central Light & Power Co., Altoona, Pa., has arranged for a bond issue of \$167,000, a portion of the proceeds to be used for extensions and improvements.

Tilghman Yager, Dorneyville, Pa., will soon take bids

for the construction of a two-story automobile service and repair building, 60 x 110 ft., estimated to cost close to \$70,000. Charles W. Gossart, 603 Hamilton Street, Allentown, is architect in charge.

The Lehigh Portland Cement Co., Allentown, Pa., has preliminary plans for a new cement mill at East Birmingham, Ala., totaling about 250 acres. The new mill will have an annual capacity of 1,000,000 barrels, and is estimated to cost in excess of \$500,000, with machinery.

The Monitor Bi-Loop Radiator Co., Lancaster, Pa., manufacturer of radiators and kindred specialties, will soon commence the erection of an addition, to provide increased floor area of about 25,000 sq. ft.

The Peerless Folding Box & Crate Co., Columbia, Pa., is planning for the construction of a new one-story factory, 50 x 200 ft., to cost in excess of \$40,000, with machinery. F. S. Sheeman, Swank Annex, Johnstown, Pa., is architect and engineer.

The Advance Rumely Co., Laporte, Ind., manufacturer of agricultural implements and equipment, has acquired property on South Cameron Street, Harrisburg, Pa., 130 x 150 ft., for a factory branch. Work will commence in September.

The Hanover Power Co., Scranton, Pa., has arranged for a bond issue of \$75,000, to be used in part for extensions and improvements.

A vocational department will be installed in the new two-story high school, 90 x 135 ft., to be constructed at Nazareth, Pa., estimated to cost about \$95,000, for which foundations are being started. Rasmussen & Wayland, 1133 Broadway, New York, N. Y., are architects.

The Stewart Artificial Ice Co., Williamsport, Pa., will commence the immediate erection of a new one-story ice manufacturing plant, 35 x 75 ft.

Fire, Aug. 28, destroyed a portion of the plant of the Scranton Electric Steel Co., Scranton, Pa., comprising a part of the former works of the Spencer Heater Co. An official estimate of loss has not been made. It is planned to rebuild.

The Metropolitan Edison Co., Reading, Pa., is concluding negotiations for the purchase of the plants and properties of the York Haven Water & Power Co., and the York Haven Electric Transmission Co., both of York Haven, Pa. Extensions and improvements will be made. The company has arranged for a preferred stock issue of 28,186 shares, a portion of the proceeds to be used in connection with the expansion.

## Buffalo

BUFFALO, Sept. 5.

THE Robertson-Cataract Electric Co., Mohawk and Elmwood Avenues, Buffalo, operating the Robertson Electric Construction Co., manufacturer of switchboard equipment and other electrical apparatus, has arranged for an issue of preferred stock, the proceeds to be used for extensions, improvements, and additions to working capital. James D. Robertson is president.

The Watson Mfg. Co., 63 Taylor Street, Jamestown, N. Y., manufacturer of steel sash, metal screens, etc., is planning the erection of a four-story addition.

The W. A. Case & Son Mfg. Co., 31 Main Street, Buffalo, manufacturer of boilers, heating equipment, etc., has called a special meeting of stockholders, Sept. 7 to arrange an increase of capital of \$2,500,000, a portion of the proceeds to be used for extensions and improvements. Joseph P. Fell is president.

The Keystone Tool & Metal Co., 56 Oak Street, Buffalo, has tentative plans under consideration for the erection of an addition.

The Webster Fruit Growers' Co-Operative Association, Lake Road, West Webster, N. Y., will commence the erection of a four-story ice and cold storage, and packing plant, 90 x 110 ft., estimated to cost about \$150,000. George W. Dunn is in charge.

The Dittmer Gear & Mfg. Co., Grand Street, Lockport, N. Y., has preliminary plans under way for an addition to its plant.

The Chautauqua Association, Colonade Building, Chautauqua, N. Y., has plans for the erection of a new automobile service and repair works, in connection with a garage with capacity of 500 cars, to replace the building recently destroyed by fire. C. S. Arnold is in charge. It will cost about \$55,000.

A vocational department will be installed in the new three-story high school to be erected at Orchard Park, N. Y. Colson & Hudson, 35 Dun Building, Buffalo, are architects.

The Ulrich Plan File Co., 516 West Fourth Street, Jamestown, N. Y., manufacturer of office equipment, has filed plans for a one-story factory on Murray Avenue, estimated to cost \$25,000.

The Rectograph Co., 282 Hollenbeck Street, Rochester, N. Y., manufacturer of photographic devices and appliances, is planning the erection of a one-story addition.

A vocational department will be installed in the new three-story school to be erected at Boonville, N. Y., to replace a structure recently destroyed by fire, to be 110 x 142 ft. and estimated to cost close to \$200,000.

The J. Spaulding & Sons Co., 484 Broome Street, New York, manufacturer of fiber products, is said to be arranging a list of machinery for installation at its new plant at Tonawanda, N. Y., on which work has been commenced. It will comprise two one and two-story buildings, 108 x 300 ft., and 60 x 200 ft., estimated to cost about \$250,000. George F. Hardy, 309 Broadway, New York, is engineer.

The Ralph Gypsum Co., LeRoy, N. Y., is planning for the installation of new machinery and equipment at its properties.

## Detroit

DETROIT, Sept. 4.

THE American Car & Foundry Co., 5718 Russell Street, Detroit, is taking bids for a one-story addition, 165 x 275 ft., to be partly equipped as a valve manufacturing department. Headquarters are at 165 Broadway, New York.

The Gray Motor Co., Mack and Railroad Streets, Detroit, manufacturer of automobiles, will commence the erection of a one-story unit, 60 x 600 ft., adjoining a new one-story extension, 60 x 400 ft., just completed. It is planned to build other units in the near future, providing for a daily production of 200 completed cars. F. L. Klingensmith, formerly connected with the Ford Motor Co., heads the organization.

The Eagle Ottawa Leather Co., Grand Haven, Mich., will install new mechanical stokers and other equipment in its power house. Cahill & Douglas, 217 West Water Street, Milwaukee, are engineers.

Fire, Aug. 24, destroyed a portion of the plant of the Standard Hoop Co., Bay City, Mich., with loss estimated at about \$35,000, including equipment.

The Solar Polar Storm Sash & Screen Co., Muskegon Heights, Mich., has completed plans for a new one-story factory, to cost about \$25,000. J. J. Gillman, connected with the Brunswick-Balke-Collender Co., Muskegon, Mich., heads the organization.

The Paige Motor Co., McKinstry Street, Detroit, has filed plans for a one-story steel addition, to cost \$30,000.

The Hammond-Wieneke Co., 206 Court Street, Saginaw, Mich., will soon call for bids for a new one-story and basement automobile service and repair building, 80 x 100 ft., estimated to cost about \$55,000. J. F. Beckissinger, 114 South Jefferson Avenue, is architect.

The Common Council, North Muskegon, Mich., has approved a bond issue of \$39,000 for the construction of a new municipal electrically-operated pumping plant. Plans will be prepared at an early date.

The Ruggles Truck Co., Bad Axe, Mich., will commence the immediate erection of a new plant, 80 x 160 ft., for the production of truck bodies, estimated to cost \$35,000. Julius Kirby is president.

The following buildings will be erected at Flint, Mich., for the Durant Motor Car Co., for the production of the Flint Six: Main building, 80 x 900 ft., three stories; plant No. 4, 400 x 80 ft., three stories; plant No. 5, 257 x 400 ft., one story; plant No. 6, 100 x 500 ft., one story. A power house to be erected will be known as plant No. 7. The Christman Construction Co., Lansing, Mich., has been awarded the contract.

## Baltimore

BALTIMORE, Sept. 5.

PRELIMINARY plans are in progress by the Potomac Public Service Co., Hagerstown, Md., for a hydroelectric power house on the Cacapon River, at Edes Fort, Morgan County, W. Va. The installation will comprise about 30,000 hp. capacity, and with transmission system is estimated to cost close to \$2,500,000. The company is operated by the American Water Works & Electric Co., 50 Broad Street, New York.

H. S. Block, Edgar and Cathedral Streets, Baltimore, has revised plans for a three-story addition, 42 x 125 ft., to his automobile service and repair works, estimated to cost about \$100,000. J. E. Moxley, Jr., Equitable Building, is architect.

The Red "C" Oil Mfg. Co., Keyser Building, Baltimore, has tentative plans for rebuilding the portion of its plant at Lawrence Street and the Key Highway, recently destroyed by fire with loss estimated at \$100,000.

The Bureau of Supplies and Accounts, Navy Department, Washington, will take bids until Sept. 19, for 21 ventilating

sets and spare parts, schedule 126; also for 19,500 ft. of electric cable, schedule 128.

The Bureau of Yards and Docks, Navy Department, Washington, is taking bids until Sept. 13, for a new hangar, with repair facilities at the Naval Air Station, Anacostia, D. C., as set forth in specification 4691.

The Mutual Cold Storage & Refrigerating Co., Broadway, Va., is completing plans for a new four-story ice and cold storage plant, 75 x 150 ft., estimated to cost about \$150,000. E. H. Mosher, Munsey Building, Washington, D. C., is architect and engineer.

The Republic Boiler & Radiator Co., Union Avenue, Woodbury, Baltimore, has awarded contract to Claiborne Johnston & Co., Garrett Building, for two one-story buildings, 60 x 150 ft., and 20 x 150 ft., respectively, to cost \$50,000. William C. Ceown is engineer in charge.

George C. Sheehan, Asheville, N. C., has acquired property at Fletcher, N. C., for a new plant to manufacture brick and kindred products. The initial works will cost about \$55,000.

The Southern Steel Products Co., Fourth and Bainbridge Streets, Richmond, Va., is planning for the installation of bar benders, and kindred equipment, at its plant.

The Chief Signal Officer, United States Army, Washington, will receive bids until Sept. 25, for two 80-ft. steel radio towers, to be erected on the United States Military Reservation, Montgomery Intermediate Depot.

Warren W. Biggs, 1310 Fourteenth Street, N.W., Washington, has awarded a contract to the W. P. Lipscomb Co., District National Bank Building, for a new two-story automobile service and repair building, 75 x 180 ft., estimated to cost about \$100,000. E. H. Mosher, Munsey Building, is architect.

The Richmond, Fredericksburg & Potomac Railroad Co., Broad Street Station, Richmond, Va., has awarded a contract to the Arnold Co., 105 South La Salle Street, Chicago, for new locomotive repair shops and engine house at Richmond to cost about \$200,000 with equipment. E. M. Hastings is chief engineer, in charge. Plans have been completed for two new locomotive coaling plants. Each structure will be equipped with five 15-ton steel hoppers with elevating equipment, sanding apparatus, etc., with capacity of about 200 tons per hour and will cost in excess of \$190,000.

Frank B. Essex, Washington, has awarded a contract to the R. P. Whitty Co., Union Trust Building, for a four-story automobile and service building, 50 x 105 ft., at 1509 Fourteenth Street, N.W., estimated to cost \$70,000.

The Herfurth Engine & Machinery Co., Camden, S. C., is making inquiries for a 75-hp. oil engine; also for an ice-making machine, inclosed belt-driven type.

The Western Paper Makers Chemical Co., Kalamazoo, Mich., has acquired property at Savannah, Ga., and plans the construction of a new paper mill, estimated to cost in excess of \$500,000, with machinery. A rosin refining plant will also be established.

The Richmond Pressed Metal Works, Sixth and Stockton Streets, Richmond, Va., plans the installation of new metal-working equipment. S. M. House is in charge.

The Standard Electric Co., 1821 East Main Street, Richmond, Va., operating a repair works, will install new equipment at its plant.

Thomas & Fulford, 336 Smith Avenue, Thomasville, Ga., have acquired a local building for the establishment of an automobile service and repair works. The structure will be remodeled. T. H. Fulford is in charge.

## Indiana

INDIANAPOLIS, Sept. 4.

REVISED plans have been prepared by the Paramount Wheel & Engineering Co., Hartford City, Ind., for its new factory to manufacture steel automobile wheels, which will increase the works and expenditure over the amount originally planned. The company was organized recently with a capital of \$300,000.

The American Gas & Electric Co., 30 Church Street, New York, has acquired a controlling interest in the Indiana & Michigan Electric Co., South Bend, Ind., and will operate the property in conjunction with its other electric utilities in this section. Extensions and improvements are planned.

The Faulkner-Burge Packing Co., Railroad Avenue, Marion, Ind., is planning to rebuild its power house partially destroyed by fire Aug. 16, with loss estimated at \$25,000, including a portion of the warehouse, adjoining.

The Falls City Hydraulic Brick Co., Jeffersonville, Ind., is planning for the installation of new machinery. Robert Akers is superintendent in charge.

The Olin Sales Co., 315 North Meridian Street, Indian-



apolis, is taking bids on a three-story automobile service and repair works, 60 x 195 ft., estimated to cost \$150,000. Walter G. Olin is president.

The Sterling Products Co., Evansville, Ind., operating a local ice-manufacturing and cold storage plant, has tentative plans under consideration for the establishment of a branch works to manufacture refrigerators and refrigerating equipment. The company was reorganized recently with a capital of \$400,000. O. A. Klamer is president, and Charles F. Hartmetz, secretary and treasurer.

## New England

Boston, Sept. 4.

**S**ALES of machine tools in this district the past week were again restricted, due to the vacation period and to the holiday. There was, however, a slight increase in sales over last week, particularly of used tools. The local trade attaches considerable significance to several new inquiries which are in the nature of private negotiation and it is felt that September will see quite a revival in business. Individual inquiries developing the past week, in all but two or three instances, concern new tools and the aggregate showing is encouraging. Inquiries for used tools include a list of 20 presses and another a considerable amount of bending and rolling equipment.

Sales since last reports include a new cold saw having 12-in. and 36-in. diameter blades, purchased by an eastern Connecticut concern; a new multiple drill and disk grinder by an East Boston firm; a fairly large new shear by a Worcester mill; a 18 in. x 6 ft. Flather lathe by a North Andover, Mass., manufacturer; and about a dozen used tools, of which a universal milling machine, taken by a local textile interest, is the most costly. A local manufacturer in the market for used Acme machines and Brown & Sharpe grinding equipment has been unable to locate these tools which emphasizes the fact that certain kinds of used machinery are practically unobtainable in this section. An export inquiry for a new large lathe and radial drill, which has been in this market for some time, has been transferred to New York. West Indies Sugar Finance Corporation, 129 Front Street.

The demand for small tools and machine parts has fallen off. Consumers apparently are buying from month to month, orders placed in this market semi-monthly indicating this condition.

Bids close this week for a proposed two-story, 30 x 142 ft. machine shop and administration building, contemplated by the Fall River Water Department, Fall River, Mass.

The Fred T. Ley Co., Springfield, Mass., has the contract for the first manufacturing unit of the new Wico Electric Co., West Springfield. It calls for completion by Jan. 1.

The Buol Machine Co., New Britain, Conn., special machinery and general machine shop business, is being organized and manufacturing quarters have been secured in the rear of 168 Arch Street. Abraham Buol, for many years superintendent New Britain Machine Co. is at the head of the company.

The Erwin M. Jennings Co., 27 Harrison Street, Bridgeport, Conn., will build a garage and service station 51 x 152 ft., on West Avenue, Norwalk, Conn. Repair equipment will be installed.

The Sieman Hard Rubber Corporation, Bridgeport, Conn., has awarded a contract to John R. Sheehan, Bridgeport, for a new one-story plant, 60 x 167 ft.

The Hood Rubber Co., Nichols Avenue, Watertown, Mass., manufacturer of automobile tires, has awarded contract to William H. Illiffo, Bailey Road, for a two-story addition, 96 x 210 ft., estimated to cost \$75,000.

The Marmon-Boston Co., Boston, recently organized by officials of the Nordyke & Marmon Co., Indianapolis, manufacturer of automobiles, has leased property at Commonwealth Avenue and St. Paul Street, totaling about 40,000 sq. ft., as a factory branch.

The Automatic Refrigerating Co., 618 Capitol Avenue, Hartford, Conn., manufacturer of refrigerating machinery, has awarded contract to M. A. Conner, 668 Broadview Terrace, for a three-story addition, 53 x 95 ft. J. T. Henderson is engineer.

The Berwick & Salmon Falls Twin State Co., South Berwick, Me., will commence the construction of a new hydroelectric generating plant on the Great Works River, near South Berwick, estimated to cost \$130,000.

The Cambridge Rubber Co., 748 Main Street, Cambridge, Mass., has awarded a contract to the Scully Co., Cambridge, for a four-story addition, 85 x 102 ft.

A vocational department will be installed in the new two-story high school to be erected at Conway, N. H., estimated to cost \$100,000, for which work will soon be placed under way. C. R. Whitchee, Beacon Block, Manchester, N. H., is architect.

The Hartley Clock Co., Attleboro, Mass., has commissioned Monks & Johnson, 99 Chauncy Street, Boston, architects, to prepare plans for a new three-story factory, 60 x 240 ft., estimated to cost about \$125,000.

The Electrolytic Iron Co., Bridgeport, Conn., will make extensions and improvements in the factory of Page & Nettleton, Milford, Conn., recently leased, and will soon commence the installation of equipment for the production of pure iron under a special process. The works will also include a complete laboratory.

A one-story power house addition, 30 x 50 ft., will be constructed by the Aeolian Co., Meriden, Conn., at its local factory.

Butterfield & Co., division Union Twist Drill Co., Derby, Line, Vt., manufacturer of taps, dies, reamers and screw plates is occupying its new brick and concrete fire proof buildings recently completed. The main factory building is 70 ft. x 170 ft. three stories and a basement, with annex one-story, 60 ft. x 170 ft. and basement, and an ell to the main building 70 ft. x 85 ft., three stories, all of the latest approved construction. This move has necessitated the purchase of considerable new equipment and machinery, and when completed gives the company nearly double its previous capacity, which is necessary to take care of growing business.

## Milwaukee

MILWAUKEE, Sept. 4.

**N**EW business continues to develop slowly but steadily in the machine-tool trade, but it does not seem to get beyond the barest necessities. The strong trend toward hesitancy noted during the latter part of July and throughout August, due to the influence of the coal and railroad shop strikes, has been relieved to some degree by the resumption of mining operations, although deliveries as yet are meager in volume and the fuel crisis is by no means past. Competition from used tools still exists, but is far less than earlier in the year. Construction of public garages and service stations throughout Wisconsin is more active than at any time in about two years and furnishes a good market for the lighter types of shop equipment, as well as for used tools, principally lathes.

The Allis-Chalmers Mfg. Co., Milwaukee, has broken ground for a one-story brick and steel manufacturing building, 175 x 400 ft., as an addition to the main works in West Allis. It will be devoted to the production of flour mill and sawmill machinery, and upon its completion about Jan. 1, the entire equipment of the present Reliance works in Milwaukee, will be transferred to the main plant. The Reliance works has been placed on the market.

The Behnke Vapor Burner Mfg. Co., Manitowoc, Wis., has been incorporated with a capital stock of \$100,000 and will lease a building to manufacture heating devices using low grade fuel for installation in furnaces, boilers, stoves, etc. Albert J. Behnke is president; Adolph C. Behnke, vice-president, and Otto H. Behnke, secretary and treasurer. Patents were granted in 1913 but since that time no concerted effort has been made until now to place the Behnke vapor burner into quantity production for the market.

George Wheary, Racine, Wis., has resigned as vice-president and general manager Hartmann Trunk Co., to organize a new corporation with \$500,000 capital stock which is equipping a factory in three floors of the Sattley Industrial Community Building, Racine Junction. It is planned to commence operations Jan. 1 with 200 operatives. The new concern will make wardrobe trunks and general traveling goods under patents granted to Mr. Wheary during nineteen years of association with the Hartmann company. Harry L. Burg, until now general Western sales manager Hartmann Trunk Co., is associated with Mr. Wheary in the new enterprise. Machinery is now being purchased.

The Minneapolis, St. Paul & Sault Ste. Marie Railway Co. is taking bids at the division headquarters, Rhinelander, Wis., for the construction and equipment of a new 20-stall roundhouse and a machine and locomotive shop at Gladstone, Mich., to replace the plant destroyed by fire in March. The investment will be in the neighborhood of \$75,000.

The Hathaway-Bulck Co., Oshkosh, Wis., has started work on a two-story garage, sales and service building, 60 x 70 ft., to be ready Nov. 1 and cost about \$25,000, including equipment.

The Corona Pen Co., Janesville, Wis., a new \$25,000 cor-

poration which will manufacture fountain pens, metal pencils, etc., will for the present conduct manufacturing operations in the plant of the Janesville Tool Co., owned by S. V. Corona and James Pitt, the principals in the new organization. A small list of equipment is being purchased.

Strong & Manley, automobile dealers and repairmen, Eagle River, Wis., has let contract to the Hub City Construction Co., Stoughton, Wis., for a garage and machine shop, 60 x 120 ft., part two stories and basement. It will cost about \$20,000 completely equipped.

The Air Reduction Sales Co., New York, which recently purchased the former machine shop of the Petit Mfg. Co., at 1505 Buffum Street, Milwaukee, for the establishment of a new branch plant, will erect a brick and concrete addition, 30 x 80 ft., part two stories. The plant is scheduled to start operations Nov. 15.

The D. F. Murray Mfg. Co., Wausau, Wis., manufacturer of sawmill, pulp and paper mill machinery, advises it has placed all contracts for material and equipment for its new plant and is now out of the market.

The Milwaukee Steam Appliance Co., West Allis, which has been incorporated with \$150,000 capital stock, represents a reorganization and consolidation of the interests of the Steam Appliance Co. and the Milwaukee Ice Machine Co., occupying jointly a large machine shop at 709-715 Sixty-third Avenue, West Allis. The complete lines manufactured by both companies will be continued. Charles H. John, formerly president and general manager Wisconsin Motor Mfg. Co., is president of the consolidated corporation.

The Service Auto Co., Clintonville, Wis., will start work in a few days on the erection of a new sales and service building, 50 x 120 ft., of which about 30 x 50 ft. will be set aside for machine shop purposes. A small list of new and used shop equipment will be purchased.

## Pittsburgh

PITTSBURGH, Sept. 4.

**M**ACHINE tool business in this district still is better in the promise than in the performance. Buying goes on with marked constancy, but sales of more than one tool to a buyer are exceptional and lists, except for estimating purposes, are very few. The price tendency is higher, due to the fact that stiff increases in costs are immediately ahead. It is pointed out that the quotations which have prevailed until the past few weeks bore very little relation to costs and were almost entirely the result of efforts by manufacturers and dealers to liquidate stocks. The wage increases just announced by the steel companies are bound to extend to the machine shops and attention now is drawn to the fact that in the wage revision which took place during 1921, skilled labor, which forms the bulk of that engaged in the manufacture of machine tools, was not called upon to take nearly as much of a reduction as was made in unskilled labor rates. It is a fact also, that a good many prospective plant improvements, involving machine tool purchases, have been held up because the money has not been available. It is believed that stocks of tools in first and second hands are pretty well cleaned up, at least to a point where they are not likely to offer much competition to new tools.

In cranes and other heavy equipment, inquiry is brisk and pending business is of large volume, but actual orders are not closing very rapidly. The order for three cranes for the Granite City, Ill., plant of National Enameling & Stamping Co., is expected to be placed soon and another live prospect is the Weirton Steel Co. sheet mill addition for which four cranes will be wanted. It is reported that the Jones & Laughlin Steel Co. is getting prices for estimating purposes on considerable equipment for its Pittsburgh steel works, and there are intimations that the recent placing of the contract for an addition of 366 ovens to the Clairton by-product plant, Carnegie Steel Co. is merely the first step in an extensive program of modernizing some of the Monongahela River plants of that company.

The Meadville Iron Co., Mill Street, Meadville, Pa., is taking bids for a one-story addition, 60 x 88 ft., to be equipped as an annealing plant. Shutts & Morrison, Marine Bank Building, Erie, Pa., are architects. Otto Kohler is president.

The Blystone Mfg. Co., Cambridge Springs, Pa., has awarded contract to the Austin Co., Cleveland, for a new plant, 90 x 260 ft., for the manufacture of concrete blocks, etc., estimated to cost close to \$50,000.

Fire, Aug. 28, destroyed a portion of the plant of the

Atlantic Bottle Co., Brackenridge, Pa., with loss estimated at about \$300,000, including machinery. It is planned to rebuild. Headquarters of the company are at 90 West Broadway, New York.

The Gulf Refining Co., Frick Annex, Pittsburgh, has acquired property, 144 x 175 ft., bounded by Aloe, Mathilda and Gross Streets, as a site for the new oil works. The buildings on the property will be razed at once.

The Standard Steel Spring Co., Coraopolis, Pa., has inquiries out for a special steel crane, equipped with long hoisting drums and hooks on 12 ft. centers.

The D. N. Carlin Co., 125-27 Denniston Avenue, Pittsburgh, manufacturer of toys, has preliminary plans for an addition.

A vocational department will be installed in the new three-story and basement high school, 68 x 130 ft., to be erected at Beaver Falls, Pa. Carlisle & Sharrer, Jenkins Arcade, Pittsburgh, are preparing plans.

The Standard Seamless Tube Co., 313 Sixth Avenue, Pittsburgh, is planning the erection of a one-story addition at Ambridge, Pa., 80 x 480 ft.

A. Staab, Pittsburgh, has acquired the building, 86 x 185 ft., at 313-17 West Main Street for an automobile service and repair works.

A vocational department will be installed in the new high school to be erected at Tenth and Indiana Streets, Monaca, Pa., estimated to cost about \$150,000, for which plans are being completed by J. H. Phillips, Fulton Building, Pittsburgh, architect.

The Koppel Car Repair Co., Koppel, Pa., is planning for the erection of an addition.

Carbocite, Inc., Huntington, W. Va., recently organized with a capital of \$250,000, has acquired the plant and property of the Huntington Coal Distillation Co. Plans are under way for the construction of works to manufacture and refine coal by-products, estimated to cost in excess of \$100,000 with machinery. S. J. Hyman is president, and R. D. Lamie, vice-president.

## The Gulf States

BIRMINGHAM, Sept. 5.

**A**STRUCTURE has been acquired by the Hendry Machine & Engineering Co., Fort Myers, Fla., recently organized, for a boat-building and repair works. A department will be established for cylinder grinding work. W. F. Lusk is general manager in charge.

The Producers' Creamery Co., Fort Worth, Tex., will install an ice and refrigerating department in its proposed new plant, estimated to cost \$75,000.

The Williams Yellow Pine Co., Poplarville, Miss., has tentative plans for rebuilding the portion of its mill destroyed by fire Aug. 25, with loss estimated at \$100,000, including machinery.

The Electrolock Mfg. Co., Vicksburg, Miss., recently organized with a capital of \$100,000 to manufacture locking devices for automobiles and other automotive equipment, is perfecting plans for the operation of a local factory. W. Hemingway, Jr., is president and general manager.

The Missouri, Kansas & Texas Railroad Co., St. Louis, is perfecting plans for the removal of its car and locomotive repair shops from DeLeon to Dublin, Tex., and will concentrate operations at the latter place. Enlargements will be made.

The Johnson Iron Works, Dry Dock & Shipbuilding Co., New Orleans, will commence the immediate installation of a new 5,000-ton dry dock, forming an additional section to dock No. 1, estimated to cost about \$100,000, including equipment.

The Kosse Light & Power Co., Kosse, Tex., is planning for the installation of additional machinery. Enlargements will be made to increase the present capacity. H. E. Blumberg is head.

The Hernando County Dairy Co., Brooksville, Fla., will install an ice-making and refrigerating plant in connection with a new dairy to cost in excess of \$60,000.

The Lee Lumber Co., Tioga, La., has plans for a new saw mill and lumber plant to cost about \$100,000, including machinery.

Fire, Aug. 23, destroyed a portion of the plant of the Excelsior Brick Co., 1001 North McDonough Street, Montgomery, Ala., with loss estimated at about \$35,000, including equipment. It is planned to rebuild. Frank Rhodes is president.

The Orlando Utilities Co., Orlando, Fla., will soon commence the erection of a new electric generating plant, 75 x 175 ft., to be operated in conjunction with a waterworks plant, estimated to cost about \$300,000, including machinery.



The installation will comprise turbo-generators, boilers, electrically-operated pumps, and auxiliary machinery. George D. Moffatt, 140 Court Street, is general manager.

The Humphries-Pure Oil Refineries Corporation, Mexia, Tex., has plans for an electrically-operated pumping plant in the new Kosse, Tex., oilfields. A tank farm will be constructed with an initial capacity of about 110,000 bbl. with pipe line, distributing machinery, etc.

The Everglade Cypress Co., Loughman, Tex., has plans for the erection of new mills, 50 x 160 ft., and 30 x 65 ft., with initial capacity of about 50,000 ft. of lumber and 20,000 ft. of lath per day. The equipment will be provided with individual motor drive. A power plant will also be built. The entire project is estimated to cost in excess of \$125,000. J. Wade Tucker, general manager, is in charge.

A. P. Jordan, Winters, Tex., is organizing a company to build and operate a refinery for gypsum products in the vicinity of Odessa, Tex. A site has been secured and plans are under way for the initial unit, estimated to cost \$35,000 with machinery. Headquarters will be established at Odessa.

The Empire Fuel & Gas Co., Tulsa, Okla., operating oil refineries, a subsidiary of the Cities Service Co., 60 Wall Street, New York, has acquired the properties of the Planet Petroleum Co., near Wichita Falls, Tex. The new owner plans additions as well as extensive development work.

The Department of Public Utilities, St. Petersburg, Fla., will take bids until Sept. 11 for a new power plant, 70 x 120 ft. W. S. Shull, St. Petersburg, is architect.

The Ford Motor Co., Jacksonville, Fla., is arranging for the erection of an assembling plant and has selected a site. Slocum Ball is manager at Jacksonville.

The Biscayne Yacht & Machine Works, Miami, Fla., has plans under way for enlargements, and will install new machinery for the construction and repair of yachts and other light craft. S. Pearlman is general manager.

## The Pacific Coast

SAN FRANCISCO, Aug. 29.

THE C. F. Braun Co., 604 Mission Street, San Francisco, manufacturer of heaters, valves, etc., will commence the erection of a branch factory at Shorb, Cal., 140 x 225 ft., to be equipped as a machine shop and foundry. Other units will be constructed at a later date.

The Southern Pacific Railroad Co., 65 Market Street, San Francisco, has arranged an appropriation of about \$29,000,000 for extensions and betterments during the current year. Approximately \$700,000 will be used for shop expansion and additional equipment.

The Newman High School District, Newman, Cal., will build a new one-story vocational shop at the high school. S. Wade is general secretary in charge.

L. D. Palmer, manager of the Orange County Fruit Exchange, and H. Warren Nice, secretary of the Chamber of Commerce, both of Orange, Cal., have organized a company to build and operate an ice-manufacturing and cold storage plant. A site has been secured and plans are being drawn for the first unit, estimated to cost \$50,000. Mr. Palmer will be president.

The Utah Oil Refinery Co., Salt Lake City, Utah, a subsidiary of the Standard Oil Co. of Indiana, Indianapolis, has plans for additions in its Salt Lake refinery to increase the capacity from 5000 to 6000 bbl. of crude oil per day. The expansion will cost close to \$600,000, including equipment.

The Birtschmann Ranch, operating near Antioch, Cal., is arranging for a series of electrically-operated pumping plants, with centrifugal and other pumping units, power equipment, etc., estimated to cost \$100,000. Easley & Anderson, Antioch, are engineers.

The Jet Oil Refining Co., National City, Cal., will commence the immediate construction of a new refinery to specialize in lubricating oils.

The Crane Co., Los Angeles, with headquarters at 836 South Michigan Avenue, Chicago, is taking bids for a one-story building, 116 x 150 ft., on West Anaheim Road, Long Beach, Cal. W. Horace Austin, 222 First National Bank Building, Los Angeles, is architect.

A vocational department will be installed in the new high school to be erected at Mountain View, Cal., estimated to cost about \$200,000. The Mountain View High School District is in charge. W. H. Weeks, 369 Pine Street, San Francisco, is architect.

The Republic Consolidated Mining & Refining Co., Mackay, Idaho, recently organized with a capital of \$3,000,000, has plans under way for a new hydroelectric generating plant, in connection with a cyanide mill. W. P. Barton is in charge.

The Harold Furnace Co., Spokane, Wash., will commence the immediate erection of a new one-story factory estimated to cost \$17,000.

The Willamette Iron & Steel Works, Portland, Ore., will make extensions and improvements in its one-story boiler shop, estimated to cost \$40,000.

The Associated Lumber & Box Co., Dorris, Cal., has tentative plans for the rebuilding of the portion of its works destroyed by fire Aug. 17, with loss estimated at \$150,000, including equipment.

A vocational department will be installed in the new high school to be erected at Helix, near Pendleton, Ore., for which plans have been authorized by the Union High School District No. 1, Umatilla County, to cost close to \$75,000. Raymond W. Hatch, Pendleton, is architect.

C. E. Taylor, Stayton, Ore., formerly head of the Stayton Light & Power Co., has acquired a power site and plans the construction of a new power house to serve Stayton, Aumsville, and vicinity. It is said that a company will be organized, headed by Mr. Taylor, to operate the plant and system.

The Little Rock Power & Water Co., Los Angeles, has made application for permission to use two power sites on Little Rock Creek, Los Angeles County, for the construction of two hydroelectric power plants, estimated to cost \$350,000 and \$300,000, respectively.

## Cincinnati

CINCINNATI, Sept. 4.

A STIFFENING in prices marked the machine tool market the past week, and while no actual advances in list quotations have yet been made, it is probable that announcements will be forthcoming within the next few weeks. The practice of some dealers and manufacturers with large stocks of giving additional discounts has now entirely disappeared and the next step is expected to be a substantial increase in list prices.

While there were no outstanding sales during the week the aggregate was satisfactory, in view of prevailing industrial conditions. Included in orders booked were several machines for a can manufacturer, and a number of cranes for the Warner Elevator Co. The Ideal Concrete Machinery Co. was also a purchaser of a crane for its new plant and the Mitchell Steel Co. is expected to close on one crane this week. School business is making up quite a fair percentage of the business in lathes, scattered orders being reported from all sections of the country. A report is current that a Michigan industrial corporation has closed on equipment, including 90 presses and approximately 50 lathes, but confirmation is lacking.

The Buffalo-Springfield Roller Co., Springfield, Ohio, manufacturer of road rollers, is erecting an addition to be in better position to take care of repair work at Springfield. Formerly the bulk of the repair work was done in Buffalo. The Buffalo shop will be continued.

The finishing plant of the Standard Bolt Corporation, Columbus, Ohio, was damaged by fire on Aug. 29 with a loss of \$75,000. It will be rebuilt.

The plant and equipment of the Elwood Iron Foundry Co., Elwood, Ind., has been sold to a company headed by Joseph G. Field, which plans to operate the works. The company recently was placed in the hands of a receiver.

The Master Tire & Rubber Co., Dayton, Ohio, has been reorganized with C. L. Cappel, president; R. E. Shuey, secretary, and C. W. Hoffritz, general manager. The new company, which is capitalized at \$200,000, is now operating on a small scale, but plans to increase the output to 500 tires daily. It also plans to manufacture rubberized cloth in the near future.

The Hochstetter Research Laboratories Co., Dayton, Ohio, has been incorporated with a capitalization of \$100,000 by Frederick Hochstetter, president; Hubert Estabrook, secretary, and Samuel L. Finn, treasurer. The company was organized for the purpose of scientific research and manufacture.

## The Central South

ST. LOUIS, Sept. 4.

BIDS are being taken by the St. Louis Wire & Iron Co., 926 Chateau Avenue, St. Louis, for a two-story and basement addition, 50 x 150 ft., estimated to cost \$40,000. Theodore R. Piesler is president.

The Standard Machine Co., 311 Fifth Avenue, S., Nashville, Tenn., has plans under way for a new two-story machine shop.

The Watkins Mfg. Co., 200 North Waco Street, Wichita, Kan., manufacturer of automobile parts, has plans for a new branch factory in the East. It is said that negotiations are under way for a location in the vicinity of Syracuse, N. Y. C. A. Watkins is head.

The United States Zinc Smelting Co., Dewar, Okla., has plans under way for rebuilding its crushing and mixing departments destroyed by fire on Aug. 21. New equipment will be installed.

The Allen & Lee Mfg. Co., Union National Bank Building, Wichita, Kan., manufacturer of oil-burning equipment, is planning for enlargements and the installation of new tools.

A vocational department will be installed in the central high school to be constructed at Waverly, Tenn., estimated to cost in excess of \$100,000. Dougherty & Gardner, Nashville, Tenn., are architects.

A one-story power house will be constructed by the City Hospital Association, Twenty-second and Cherry Streets, Kansas City, Mo. W. E. Gillham, 309 Mutual Building, is engineer.

The Federal Chemical Co., Nashville, Tenn., has tentative plans for rebuilding its sulphuric acid plant destroyed by fire, Aug. 28 with loss reported in excess of \$1,000,000, including buildings and equipment.

L. O. Mitchell, Kansas City, Mo., operating a machine shop at 713-15 Central Street, plans for the installation of a number of new machine tools.

The United States Quartermaster, Fort Leavenworth, Kan., will receive bids until Sept. 9, for machine shop supplies, as set forth in circular 23-6.

The Blanchard & Campbell Coal Co., Harriman, Tenn., recently organized, has plans under way for the installation of electrical and mechanical equipment at its mining properties. N. C. Blanchard is president; and T. F. Campbell, secretary.

C. B. Wilson, 1212 Arlon Avenue, Wichita, Kan., is making inquiries for a lathe, drill press, and other machine shop equipment.

A vocational department will be installed in the new high school to be constructed at Rockwell, Tenn., estimated to cost close to \$100,000, for which work will be placed under way at once. Manley & Young, Knoxville, Tenn., are architects.

The Universal Car Co., 2228 Oak Street, Louisville, has awarded contract to J. Besser & Co., 2142 Frankford Avenue, for a new one and two-story service and repair works at Twenty-fifth Street and Broadway, estimated to cost about \$60,000.

The Common Council, Rich Hill, Mo., is arranging for the installation of new equipment at the municipal electric power plant. A bond issue has been arranged.

The Guarantee Repair & Construction Co., First and Waco Streets, Wichita, Kan., is planning for the installation of a number of machine tools, and other equipment. J. B. Phillips is in charge.

A vocational department will be installed in the new high school to be constructed at Coal Creek, Tenn., estimated to cost approximately \$90,000.

The Cynthiana Carriage Co., Cynthiana, Ky., has plans under way for a branch factory at Covington, Ky. J. W. Leek heads the company.

The White Co., 2001 Grand Avenue, Kansas City, Mo., manufacturer of motor trucks, with plant at Cleveland, will commence work at once on the super-structure for its two-story and basement service and repair building, 100 x 250 ft., to cost about \$100,000. Clifton B. Sloan, 321 East Eleventh Street, is architect.

A vocational department will be installed in the new one and two-story high school, 90 x 95 ft., at Kanopolis, Kan., estimated to cost \$75,000, for which plans have been completed by Charles W. Shaver, Salina, Kan., architect.

## Canada

TORONTO, Sept. 4.

**D**EMAND for machine tools is slowly showing improvement and inquiries coming out indicate a heavier buying movement before the end of the month. The Canadian National Exhibition is renewing interest in the machinery market and buyers are paying keen attention to new lines, especially those for labor saving purposes. The outlook in the fuel situation, while still far from favorable, is improving and it is the general opinion that if coal supplies begin to make their appearance in increased quantities companies which have deferred purchases will commence buying on a more extensive scale.

Another factor which is expected to have some bearing on the market is that the holiday season is about over and as a general rule business picks up about this time. Good crops are predicted and manufacturers of farm machinery look forward to a brisk demand for their products. The call for mining equipment is also more pronounced and machinery for electrical development purposes is in active demand. Woodworking machinery continues to lead the market in activity. Small tools and supplies are moving more freely.

W. S. Fenton, Port Elgin, Ont., is in the market for an engine lathe, about 12-ft. bed, back geared and compound rest.

The ratepayers of Milton, Ont., carried a by-law to loan Smith & Stone \$40,000, in return for which the company will erect an addition to their plant for the manufacture of electrical supplies, etc.

The Keystone Watch Case Co., 15 Maiden Lane, New York, will establish a factory and distributing centre at Toronto to take care of Canadian trade. A six-story reinforced concrete factory will be erected on George Street, and building operations will begin within the next few weeks.

H. S. Cook & Co., have leased the foundry and stove department of the New Burrell-Johnson Iron Co. at Yarmouth, N. S., and will carry on a general foundry business.

Bids will be called immediately for the erection of a shingle mill to cost \$74,000 for the Phillips-Hoyt Lumber Co., Burnaby, B. C.

## Cleveland

CLEVELAND, Sept. 4.

**L**OCAL machine tool sales keep at about the recent volume. While business with some manufacturer fell off in August as compared with July, pending small lot inquiries indicated an improvement in sales this month. The American La France Co., Elmira, N. Y. during the week purchased 5 or 6 turret lathes from a Cleveland manufacturer and it is understood to have placed orders for a number of grinding, milling and other machines. The Ternsted Mfg. Co., Detroit, recently purchased 70 small punch presses. The Lima Locomotive Co., Lima, is expected to place orders within a day or two for about 25 machine tools for its plant extensions.

The price situation is still an important feature of the market and it is expected with increased costs machine tool manufacturers who have not already made advances will be forced to mark their prices up. Gould & Eberhardt announced an advance in varying percentages Sept. 1 on their line of shapers. Dealers are looking for advances on vertical boring mills about Sept. 15.

Pickands Mather & Co., Cleveland, have sent out the following list of metal and wood-working machinery required for their Zenith mine, Ely, Minn.

- One 2-in. single head bolt and pipe cutter.
- One 24-in. x 24-in. metal planer.
- One vertical wood boring machine.
- One power hack saw.
- One 800-lb. steam hammer.
- One 36-in. band saw.
- One single cylinder surfacer.
- One 6-in. pipe threading machine.
- One 100-ton portable hydraulic press.

With the exception of the pipe threading and bolt cutting machine the company will give preference to used machinery.

The White Co., Cleveland, during the week took an order from New York City for 128 5-ton trucks.

The Johnston & Jennings Co., Cleveland, has purchased the business of the U. S. Molding Machine Co., and will manufacture the line of molding machines that has heretofore been made by the company.

The National Sanitary Co., Salem, Ohio, has commenced rebuilding its foundry, recently burned, and expects to place it in operation about Oct. 1.

The Youngstown Boiler & Tank Co., Youngstown, Ohio, will build a one-story, structural steel addition. The contract has been placed with the Niles Forge & Mfg. Co.

The Armington Engineering Co., Euclid, Ohio, is erecting a one-story steel frame factory addition, 34 x 100 ft., for assembling purposes.



## NEW TRADE PUBLICATIONS

**Spaders, Air Compressors and Coal Cutters.**—Sullivan Machinery Co., 122 South Michigan Avenue, Chicago. Six bulletins, 70-X, compressed air spader; 77-D, portable air compressors; 79-C, "Ironclad" coal cutters for room and pillar and long wall mining; 79-D, "Ironclad" coal cutters for room and pillar mines; 79-E, long wall "Ironclad" cutters; 79-F, motors, driving gear, cutters and feed for "Ironclad" coal cutters. Well illustrated and containing tabular specification details and dimensions, these bulletins feature mining machinery for the production of coal.

**Waugh-Sinclair Portable Compressor Plant.**—Denver Rock Drill Mfg. Co., Denver, Col. A 16-page pamphlet devoted to portable air compressors for use in isolated locations or in city streets. Gasoline drive, rugged construction and adequate cooling of both engine and compressor cylinders are features. Tabular specifications are given of a 32-hp. size weighing, complete on its own truck, 3200 lb., and a 20-hp. size weighing 6800 lb. The bare truck, in each case, accounts for 1600 lb. of the total given.

**Rolling Steel Shutters and Metal Shop Fronts.**—S. W. Francis & Co., Ltd., 64-70 Gray's Inn Road, London, W. C. 1, England. A 48-page catalog of steel rolling shutters, wood lath shutters, spring roller shutters, awnings, metal work for store fronts, collapsible steel gates and sections of metal moldings and beadings, angles, channels, nosings, etc., both plain and backed by wood. Diagrams are freely used in showing construction, operation and clearances for both steel and wood-lath rolling shutters, and tables give the space requirements.

**Metallic Packing for Condensers.**—Crane Packing Co., 1809 Cuyler Avenue, Chicago. A 24-page pamphlet dealing with condenser tube packing problems and their solution. Special attention is paid to tube disintegration through electrolysis and to deformation and splitting of tubes, due to metal fatigue, abuse and other causes. Use of Crane metal packing rings, built of many spiraled layers of thin babbitt foil, is described and advocated.

**Koerting Fuel-Oil Burning Systems.**—Schutte & Koerting Co., Philadelphia. Volume 5, 84 pages, contains Bulletins 16 OA, mechanical oil-burning system; 16 OD, auxiliary apparatus for burning oil; 16 OG, Askro type oil-burning system; 16 OJ, steam and air pressure oil-burning systems; 16 OM, fuel oil, its properties and advantages. The bulletins are profusely illustrated, with the aid of colors and diagrams, sections and installation views. Tables of sizes and capacities are given, and discussions of engineering features of the various types of apparatus. Instructions for operation of oil-burning systems and apparatus are given. Combustion is treated separately.

**The Fitzgibbon Boiler.**—Fitzgibbon's Boiler Co., Inc., 47 West Forty-second Street, New York. A 16-page catalog of cylindrical fire-tube boilers designed for both power and heating. Tables of dimensions and capacities are given for both types of service and for differing power pressures. The boiler is internally fired and is constructed under the boiler code of the American Society of Mechanical Engineers.

**Rayco Pulverized Coal Systems.**—Raymond Brothers Engineering Co., 1315 North Branch Street, Chicago. Catalog No. 15, 32 pages. This describes complete engineering and manufacturing service for preparing, distributing and burning pulverized coal. One page, devoted in small type to the savings from the use of pulverized coal, as shown by experiences in 15 different plants, gives both a brief description of each installation and a definite measure on the results. These installations include annealing, puddling, forge, melting, heating and smelting furnaces and power plant boilers. A chart of the growth in the use of powdered coal shows a gradual increase from 1895 up to 5,000,000 tons consumption per year in 1917, jumping thence in four years to 30,000,000 tons per year.

**Getting Business With Graphics.**—Esterline-Angus Co., Indianapolis. A 4-page leaflet concerned with the possibilities of selling technical products with the aid of graphic records, assisting the customer to visualize the subject. The use of automatic records is featured, with specially graduated paper used in appropriate recording instruments.

**Multiple Plate Friction Draft Gear.**—Hall Draft Gear Corporation, Watervliet, N. Y. Two leaflets describing railroad draft gear with opposing steel gear housings

inclosing and protecting friction plates, springs and other parts. Three sizes are made, besides special twin spring gears. Results of tests are given, showing resistance to distortion and damage. Car impact tests show the closing speed of the gear to be  $5\frac{1}{4}$  miles per hour.

**Reliance Steam Specialties.**—Reliance Gage Column Co., 5902 Carnegie Avenue, Cleveland. Catalog M of 16 pages, describing safety water columns, electric alarms for water columns, seamless copper floats, water gages, gage cocks and steam traps. Illustrated by both half-tones and diagrams, the catalog contains also tabular matter of value in connection with the use of the specialties described. One float which had been in service 28 years is shown.

**Safety Car Equipment.**—Reasons for the safety car described in Bulletin 44015 of the General Electric Co., Schenectady, N. Y., are improvement in service, increase in riding habit, lower maintenance cost, reduction in labor cost and in power consumption and freedom from accidents. The standard safety car most commonly used is about 28 ft. long and seats 32 passengers. The body is mounted on a single truck, with 26-in. wheels and wheel base of about 8 ft. Completely equipped, it weighs about 15,000 lb. It is of all steel construction and is built to a standard form and size.

## Industrial Finances

The plant and equipment of the Barney & Smith Car Co., Dayton, Ohio, will be offered at sheriff's sale at Dayton, Oct. 10, 2 p. m. This is the second time the plant has been offered, no bids having been received on July 12. A reappraisal of the property has just been completed which reduced the appraised value of the plant by nearly one million dollars, to \$2,273,708.87.

The Wickwire-Spencer Steel Corporation, Worcester, Mass., and Buffalo, has called a special meeting of stockholders Sept. 8 to vote on the acquisition of all the capital stock of the American Wire Fabrics Co., Chicago.

The directors of the Worthington Pump & Machinery Corporation at a recent meeting declared the regular quarterly dividends of  $1\frac{1}{4}$  per cent on class A preferred and  $1\frac{1}{2}$  per cent on class B preferred stock, payable Oct. 1. No action was taken on the common stock dividend.

The Burton Engineering & Machinery Co., Spring Grove Avenue, Cincinnati, has been placed in the hands of a receiver. The company manufactures gasoline locomotives and other road-building machinery. The plant will be continued in operation.

The directors of the Reynolds Spring Co., Jackson, Mich. have declared a dividend of  $1\frac{1}{4}$  per cent on the preferred A stock and preferred B stock.

The directors of the Crucible Steel Co. of America at a recent meeting declared the regular quarterly dividend of \$1.75 on the preferred stock.

The Dayton, Toledo & Chicago Railroad, recently placed in the hands of a receiver, was bid in for \$50,000 by William Stroop, Dayton, Ohio, tobacco dealer, at receiver's sale Aug. 24. It is understood that the new owner will spend approximately \$500,000 in equipment for the road, the plans calling for five locomotives, 50 freight and passenger cars, and the relaying of rails on the greater part of the line.

The sale of 300,000 shares of Otis Steel Co. common stock at \$11 a share to present shareholders, as proposed by the directors of that corporation, has been approved by stockholders.

Subscriptions to the new stock issue of the Lima Locomotive Works, Inc., have provided more than \$3,300,000 cash, which is sufficient to finance half of a \$3,000,000 construction program and to retire approximately \$1,300,000 outstanding bonds.

For the six months ending with June, last, sales of the Winchester Repeating Arms Co., New Haven, Conn., amounted to \$6,588,012, and net operating profits \$403,343. Interest charges for that period amounted to \$459,844, thus a loss of \$56,501 was shown for the first half of the year.

The New York Air Brake Co. reports earnings for the first half of 1922 amounting to \$309,507, after all charges, or the equivalent of \$3.09 per share on \$10,000,000 capital stock outstanding.

The net profit of the Keystone Steel & Wire Co. for the year ended June 30 was \$412,047 and, after providing for all charges and federal taxes, the surplus was \$29,540. The balance sheet as of June 30, last, showed total assets and liabilities of \$8,649,787, and profit and loss surplus \$178,081. Current assets, including \$263,965 cash, were \$2,014,191, compared with current liabilities of \$319,496. No bank loans were outstanding.

## Plans of New Companies

At a recent meeting of the Temple Furnace Co., Temple, Pa., a permanent organization was effected with Nils Anderson, president; G. A. Coulton, vice-president; C. A. Sleicher, treasurer, and H. Sellers, secretary. Repairs and improvements of the furnace at Temple, Pa., are being pushed rapidly in order to get the furnace in blast at an early date.

The Liberty Tool & Die Corporation, Rochester, N. Y., has been incorporated with a capital of \$10,000 to manufacture machinery, tools, dies, etc. The directors of the company, all residents of Rochester, are: C. F. Mallick, 25 Pullman Avenue, C. M. Meyer and F. E. Wegner.

The J. D. Tire Jack Corporation, 15 Journal Square, Jersey City, N. J., is planning to start operations on the J. D. tire jack which it will manufacture under contract. This company is now receiving bids with a view to an early production date.

The Globe Steel Tubes Co., a reorganization of the Globe Seamless Steel Tubes Co., Milwaukee, was recently incorporated under the Delaware laws and will continue to manufacture the line handled by the old company. Its factories are at Milwaukee. The officers are: R. P. Lamont, chairman; P. J. Kalman, president; F. J. O'Brien, vice-president and general manager; G. O. Ross, secretary and treasurer.

The Brady Elevator Equipment Co., Inc., 95 Liberty Street, New York, recently incorporated for \$1,000,000 under the Delaware laws, is now having its manufacturing done by contract until it starts operations in its new plant. It will do its own construction work and will continue to manufacture elevator door closers. The officers are T. Brady, president and general manager; L. G. Hagenbuch, secretary and treasurer.

The Defiance Auto-Lock Corporation, 836 Hamilton Street, Allentown, Pa., recently incorporated, will manufacture automobile radiators and other metal products. At the present time it is in the market to contract for brass and solder. The officers are: E. W. Reuber, president; R. H. Peterson, vice-president and general manager, and A. F. Landis, secretary.

The Universal Machine & Equipment Co., Greensburg, Pa., has been incorporated with a capital of \$200,000 to manufacture machinery and parts. For the present its manufacturing will be done by contract.

The Marfield Radio Mfg. Co., New York, has been incorporated with a capital of \$20,000 to manufacture wireless equipment and parts, chief of which is the Clarion radio horn. Manufacturing for the present will be done partly by contract. Epstein & Axman, 175 Fifth Avenue, represent the company.

Leo Schlesinger & Co., Inc., 64 Wooster Street, New York, has been incorporated with a capital of \$100,000 to manufacture tinware and general metal goods. The new company will take over the business of Leo Schlesinger & Co., and contemplates expansion. Jenks & Rogers, 67 Wall Street, New York, represent the company.

The O. C. Jensen Machine Corporation, New York, has recently incorporated with a capital of \$15,000, and will manufacture machinery and parts. Plans for manufacturing are yet undecided. F. Bien, 280 Broadway, New York, represents the company.

The Vulcan Radio & Electric Corporation, New York, has been incorporated with a capital of \$100,000 to manufacture wireless equipment and parts. It will do its own manufacturing for the present. The company is represented by W. F. Ashley, Jr., 156 Broadway, New York. The incorporators are: C. S. Ashley, P. R. Bassett and T. O. Hall.

The Arrow Body & Wagon Works, New York, has been incorporated with a capital of \$15,000 to manufacture automobile bodies. It is still in the process of organization and undecided as to the date of beginning operations. The incorporators are: H. Brown, H. Melnic and L. Rubin. The company is represented by R. H. Schenk, Aeolian Building, West Forty-second Street, New York.

The Progressive Iron Works, Inc., 104 Court Street, Reading, Pa., was recently incorporated to do structural and ornamental iron and brass work. It has purchased equipment for a plant located in Reading, Pa., and has already started operations.

The Gorlov Heater Co., 34 South East First Street, Miami, Fla., has started operations in manufacturing several types of automatic water heaters. Most of its work will be let out to contract.

The International Chain & Mfg. Co., 1207 Vine Street, Philadelphia, recently incorporated, is a re-organization comprising the chain business of George J. Campbell, Philadelphia, and the Victory Chain & Mfg. Co., York, Pa. The factory at York will be enlarged to meet the requirements of the expansion, and new equipment will be needed for making certain lines of electric welded chain. The officers

of the new company are: G. J. Campbell, president and general manager and J. L. Mueller, vice-president.

The Unique Brass Foundry Co., 833-841 Grant Street, Buffalo, recently incorporated, will manufacture storage batteries and parts. It has an equipped plant and is now manufacturing.

The King-Schultz Co., New York, has been incorporated to manufacture iron and steel products. Its plant is located at 351 East Thirty-third Street. The incorporators are: H. King, A. Schultz and S. Tobias.

The Gottwik-Scheffer Thermometer Co., New York, has been incorporated with a capital of \$20,000, to manufacture thermometers and other instruments. It is looking for a plant of considerable capacity somewhere in Brooklyn and hopes to be able to transfer its equipment about Sept. 1. Its offices for the present are located at 15 Park Row. The incorporators are: J. E. Gottwik, and H. S. Scheffer, Sr. and Jr.

The Flower City Pipe & Iron Corporation, Rochester, N. Y., has acquired the iron yard formerly conducted by Coates, Bennett & Reidenbach, Inc., and plans to operate a general iron and steel business, specializing in pipe and pipe products. The plant is equipped to handle scrap, to cut, thread and refit used pipe, and to manufacture cellar columns, fence posts, etc. The officers of the company are: B. Rosenthal, president; R. H. Coates, treasurer and general manager and J. E. Gore, secretary.

The Brantford Computing Scale Mfg. Co., New York, was recently incorporated with a capital stock of \$100,000, to manufacture scales. This company is a subsidiary of the Brantford Computing Scale Co., Ltd., Brantford, Ont., which expects to set up a number of distributing offices in the United States. An assembling plant is also being contemplated for the near future. It will probably be located in or near Buffalo. The incorporators are: W. Mendell, D. P. Ritchey and W. F. Donnelly. The New York offices will be located at 30 East Forty-second Street.

The Udall & Landan Mfg. Co., 205 Lafayette Street, New York, has been incorporated with a capital of \$20,000, to manufacture tools and other metal products. It will also do some repair work. The incorporators are: P. A. Udall, J. A. Landan and I. Hecker. Mr. Udall was mechanical engineer in charge of the Panama Canal Exhibit. The company will take over the business of J. A. Landan & Co., Inc., and plans to do most of its work at the present location, but some parts will be manufactured by contract.

The Smith-Hamburg-Scott Welding Co., New York, has been incorporated with a capital of \$20,000, to manufacture metal products and to do general welding and repair work. The incorporators are: C. P. and L. W. Scott, and H. Sancier. Its offices will be located at 505 West Fifty-seventh Street.

The Hunter Saw & Machine Co., Fifty-seventh and Butler Streets, Pittsburgh, has opened an office at 56 Pine Street, New York. F. E. Harrison in charge; also at Manhattan Building, Chicago. P. W. Wendt in charge. Both offices will carry a complete stock of metal-cutting circular saw blades, pneumatic hammer rivet sets and chisel blanks.

The Celite Products Co., Ltd., New Birks Building, Montreal, Canada, has been established to market Sil-O-Cel and Filter-Cel as produced by the Celite Products Co., Chicago. Sil-O-Cel is a product used for the prevention of excessive heat loss from boilers, furnaces, etc. Filter-Cel is a filtering aid. L. Russel is manager of the Montreal office.

The Fire Pump & Equipment Co., 2237 Insurance Exchange Building, Chicago, recently organized, will do construction work throughout the United States. It has been buying machines to the extent of \$8500 per month since May and will now buy from \$5000 to \$10,000 worth of machinery each month. It is also in the market for Duplex Underwriter Pumps. The officers of the company are: Edward Maher, president; E. G. Maher, secretary and treasurer and E. E. Maher, vice-president.

The George F. Foss Machinery Co., 174 Lafayette Street, New York, has been purchased by L. Cohan, Woodcrafts Equipment Co., and is being operated under the name Lafayette Machine Tool Co.

The Maxim Spark Plug Corporation, 2 Duane Street, New York, recently incorporated, is manufacturing a spark plug the main operation of which involves die casting. This phase of the work will be done by contract.

The Marion Electric Mfg. Co., 24 Cliff Street, Jersey City, N. J., has filed notice of organization to manufacture electrical products. It is operating in its own plant at the above address. A. B. Dittmar heads the company.

The Standard Lock Corporation, represented by Bond, Schoeneck & King, 421 Union Building, Syracuse, N. Y., was recently incorporated and will manufacture locks.

The Boiler & Radiator Corporation, 154 East Avenue, Rochester, N. Y., will act as representative for complete lines



of boilers, radiators, steam specialties and kindred lines, devoting particular attention to Kewanee heating and power boilers.

Consolidation of the Prima Radio Corporation, New York, and the Manufacturers Tool & Die Works, under the corporate title of the Prima Radio Corporation, has been announced. The capitalization of the new company is \$50,000 in 8 per cent preferred stock of \$10 par value and 1,500,000 shares of \$1 par value common. William Schilling is president and Andrew E. Puckrin is chairman of the board of directors.

The McPhilben Corporation of New Jersey, Newark, N. J., has been incorporated with a capital of \$25,000, to manufacture electrical equipment and parts. For the present it is doing jobbing business only, future developments depending upon the resumption of normal conditions. It does not expect to do its own manufacturing. Address H. Citrit, 747 Broad Street, Newark, N. J.

The Minden-Edgar Iron Works, Inc., Long Island City, N. Y., has been chartered under State laws to manufacture iron and steel products and to operate a general iron works. It has acquired a plant and will do its own work temporarily. The incorporators are E. F. Minden and P. F. Edgar. The company is represented by J. G. Snyder, 256 Broadway, New York.

The Niagara Welding & Boiler Works, Inc., 1140 Whitney Avenue, Niagara Falls, N. Y., was recently incorporated to manufacture boilers and other iron products. It has taken over the business of the Niagara Welding Works and will continue boiler making and welding. It does not intend to manufacture at present. The incorporators are W. I. Grantham, J. Karon and H. J. Cantara, all of Niagara Falls.

The Consolidated Foreign Motor Car Co., 135 West Seventy-second Street, New York, has been incorporated under the Delaware laws with a capital of \$22,500,000 to manufacture automobiles. At present it plans to equip chassis of foreign manufacture with coachwork built in the United States. Agencies will be established in all the principal cities.

The Detroit Automatic Vending Machine Co., Detroit, is ready for operations, manufacturing automatic food vending and liquid dispensing machines for use in restaurants.

The Gerson Rolling Mill Co. has been incorporated under the name Southern Steel & Rolling Mill, Inc., Birmingham, Ala., with a capital of \$200,000. At present it is installing a 16-in. bar mill, to be equipped with two four-door sand bottom furnaces. The company's 8-in. mill will be changed to electric power, increasing the yearly capacity to 30,000 tons. It will specialize in reinforcing bars and fence posts in addition to the merchant bar trade.

The Medina Lake Boat Works, Medina Lake, Tex., recently organized, is in the market for boat equipment of all sorts. Its business is building and repairing boats.

The Perfection Ice Scoring Machine Co., Gainesville, Tex., manufacturer of ice scoring machines, will have some of its manufacturing done by contract in the North at a later date. At present these machines are being made in three plants in Waco, Tex. The officers are: R. H. Roark, president, and W. McKemie, vice-president and general manager.

The Huron Mfg. Co., Detroit, which was recently incorporated, has made tentative arrangements for manufacturing. It is undetermined about its final plans. H. N. Reynolds is president.

The McChesney Foundry & Mfg. Co., 812 Texas Street, El Paso, Tex., was recently incorporated to manufacture iron and steel specialties. It is operating in a plant which was built last November, but plans are under way to increase its capacity. Some of its products are cast-iron grates, tanks and soil pipe, furnaces, boilers and heaters. The company also has a pattern shop. The incorporators are: L. P. McChesney, president, W. S. Dobie and S. J. Isaacs.

The consolidation of the firm Marks & Fiske, distributors of iron and steel supplies, and Louis Zeiger & Co., operators in iron and steel in the Middle West for the past 15 years, is announced. The merged firms are to be incorporated as the Marks-Fiske-Zeiger Co. with offices and warehouse at 2503-07 Twenty-fourth Street, Detroit. Plans for expansion of warehouse and yard facilities have been put into operation. A complete stock of steel will be handled. A separate department will be devoted to the handling of tank and railroad equipment. Harry J. Marks is president of the new concern; Louis Fiske, vice-president, and Louis Zeiger, treasurer and chairman of the board.

The Lees-Bradner Co., manufacturer of gear generators, thread millers and gear tooth grinders, Cleveland, has established a direct sales office at 32 North Clinton Street, Chicago, in charge of Frank E. Artz.

## Trade Changes

The Charcoal Iron Co. of America announces the removal of its general offices from Detroit to Union National Bank Building, Marquette, Mich.

The Illinois Tool Works, manufacturer of cutters, hobs and reamers, Chicago, has appointed the Commercial Steel & Supply Co., Plymouth Building, Cleveland, as its representative in the Cleveland district. Complete facilities are available to the Commercial Steel & Supply Co. for rendering service to customers.

W. A. Jones Foundry & Machine Co., manufacturer of speed reducers and power transmitting machinery, with general offices and factory at 4401-4451 West Roosevelt Road, Chicago, announces the opening of another branch sales and engineering office at 2482 University Avenue, St. Paul, Minn. C. F. Ford, who is in charge of the new branch, is a transmission engineer, experienced in working out elevating, conveying and power transmitting problems.

The Morse Chain Co., Ithaca, N. Y., has changed the location of its Philadelphia offices to 612 Franklin Trust Building and 18-22 South Fifteenth Street.

The Wagner Electric Mfg. Co., St. Louis, has changed its name to the Wagner Electric Corporation.

The Erie Mop & Wringer Co., Erie, Pa., has changed its address to East Rochester, N. Y.

The Republic Pipe & Iron Corporation, 1185 Flushing Avenue, Brooklyn, N. Y., has changed its address to 23-29 Varick Avenue, Brooklyn.

The C. C. Carter Machinery Co. has changed its address from 36 Garnet Street to 150 Chestnut Street, Providence, R. I. Its new warehouse, which trebles the storage space in the old location, is at 37-39 Bassett Street.

Samuel W. Hay's Sons, 1410 Keenan Building, Pittsburgh, has been appointed representative of the Diamant Tool & Mfg. Co., Inc., 91 Runyon Street, Newark, N. J., for the sale of standard punch and die sets in a part of Pennsylvania.

The Mechanical Appliance Co., Milwaukee, has changed its name to the Louis Allis Co. There is no change in ownership or personnel.

The American Electric Fusion Corporation has changed its address from 1906 North Halsted Street, to 972 Montana Street, Chicago.

Scheid Engineering Corporation, 90 West Street, New York, has been appointed metropolitan and export representative for the Franklin Moore Co., Winsted, Conn., manufacturer of material handling machinery for industrial plants.

Charles Eisler, mechanical engineer, has moved his factory and offices from 15 Kirk Alley to 736 South Thirteenth Street, Newark, N. J., where he has a new brick factory of 6000 sq. ft. capacity.

The Montgomery Chemical Works, Inc., Elmtree and Doremus Streets, Detroit, has changed its address to Buffalo and Doremus Streets.

The Milwaukee Machinery Co., Milwaukee, will move from its present location, Sycamore Building, to its new offices and display room at 93 West Water Street, on Sept. 1.

The American Pipe & Supply Co., 1420 South Eighth Street, Philadelphia, has leased the entire building at 305 Cherry Street, for a new plant.

The Sayre-Level Radio Co., 905 Filbert Street, Philadelphia, manufacturer of wireless equipment, has tentative plans for a factory. New equipment will be installed.

The Nashua Gummed & Coated Paper Co., announce that the transfer of business of the National Binding Machine Co. is completed, forming a new division of the former company known as the Package Sealing Division, located at 291 Broadway, New York.

H. T. Henning & Co., Shubert Building, 250 South Broad Street will remove its offices to 724-725 Land Title Building, Broad and Chestnut streets, Philadelphia on August 31.

Frazer & Co., 30 Church Street, New York, announce the opening of an office in Zurich, Switzerland.

Phillip A. Udall, for several years with the Holt Mfg. Co., Peoria, Ill., in the capacity of mechanical engineer, and engineer in charge of the Panama Exhibit under George W. Goethals, has formed a company with J. A. Landon, Inc., the new firm to be known as the Udall & Landon Mfg. Co., 205 Lafayette Street, New York. It has acquired the properties of the former company and is developing two new patents which it will put on the market in the near future.

The O. & J. Machine Co., Worcester, Mass., has moved from 116 Gold Street to quarters one-third larger at 60 Ellsworth Street. In addition to Oslund continuous wire-drawing machines, described in these columns last February, the company continues the manufacture of automatic corking, crowning and labeling machines for all purposes and has added a new line in automatic testing tanks for testing bottles.

# Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

On a number of articles the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE under the general heading of "Iron and Steel Markets" and "Non-ferrous Metals."

## Iron and Soft Steel Bars and Shapes

Bars:	
Refined iron bars, base price .....	2.94c.
Swedish bars, base price .....	7.00c.
Soft steel bars, base price .....	2.94c.
Hoops, base price .....	4.29c.
Bands, base price .....	3.74c.
Beams and channels, angles and tees	
3 in. x ¼ in. and larger, base.....	3.04c.
Channels, angles and tees under 3 in.	
x ¼ in., base .....	2.94c.

## Merchant Steel

	Per Lb.
Tire, 1½ x ½ in. and larger .....	2.94c.
(Smooth finish, 1 to 2½ x ¼ in. and larger) ..	3.14c.
Toe-calk, ½ x ¾ in. and larger.....	4.00c.
Cold-rolled strip, soft and quarter hard..	6.75c. to 7.25c.
Open-hearth spring steel.....	4.50c. to 6.00c.
Shafting and Screw Stock:	
Rounds .....	3.90c.
Squares, flats and hex.....	4.40c.
Standard cast steel, base price.....	12.00c.
Extra cast steel .....	17.00c.
Special cast steel .....	22.00c.

## Tank Plates—Steel

¾ in. and heavier .....	3.04c.
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## Sheets

### Blue Annealed

	Per Lb.
No. 10 .....	4.04c. to 4.19c.
No. 12 .....	4.09c. to 4.24c.
No. 14 .....	4.14c. to 4.29c.
No. 16 .....	4.24c. to 4.39c.

### Box Annealed—Black

	Soft Steel	Blued Stove
	C. R., One Pass,	Pipe Sheet,
	Per Lb.	Per Lb.
Nos. 18 to 20.....	4.55c. to 4.70c.	.....
Nos. 22 and 24.....	4.60c. to 4.75c.	4.60c.
No. 26 .....	4.65c. to 4.80c.	4.65c.
No. 28 .....	4.75c. to 4.90c.	4.75c.
No. 30 .....	5.00c. to 5.15c.	.....

No. 28 and lighter, 36 in. wide, 10c. higher

### Galvanized

	Per Lb.
No. 14 .....	4.85c. to 5.00c.
No. 16 .....	5.00c. to 5.15c.
Nos. 18 and 20 .....	5.15c. to 5.30c.
Nos. 22 and 24 .....	5.30c. to 5.45c.
No. 26 .....	5.45c. to 5.60c.
No. 27 .....	5.60c. to 5.75c.
No. 28 .....	5.75c. to 5.90c.
No. 30 .....	6.25c. to 6.40c.

No. 28 and lighter, 36 in. wide, 20c. higher.

## Welded Pipe

### Standard Steel

	Black	Galv.
½ in. Butt ..	—53	—38
¾ in. Butt ..	—58	—45
1-3 in. Butt ..	—60	—47
2½-6 in. Lap ..	—57	—44
7-8 in. Lap ..	—53	—30
9-12 in. Lap ..	—49	—30

### Wrought Iron

	Black	Galv.
¾ in. Butt....	—23	—5
1½ in. Butt ..	—25	—7
2 in. Lap.....	—19	—3
2½-6 in. Lap..	—23	—7
7-12 in. Lap..	—15	+1

## Steel Wire

BASE PRICE\* ON NO. 9 GAGE AND COARSER Per Lb.

Bright basic .....	3.50c. to 3.75c.
Annealed soft .....	3.50c. to 3.75c.
Galvanized annealed .....	4.25c. to 4.50c.
Coppered basic .....	4.00c. to 4.25c.
Tinned soft Bessemer .....	5.50c. to 5.75c.

\*Regular extras for lighter gage.

## Brass Sheet, Rod, Tube and Wire

### BASE PRICE

High brass sheet .....	19¼c. to 20¼c.
High brass wire .....	20¼c. to 20¾c.
Brass rod .....	16¾c. to 17¾c.
Brass tube, brazed .....	26¼c. to 27¼c.
Brass tube, seamless.....	23 c. to 23¼c.
Copper tube, seamless .....	25¼c. to 26 c.

## Copper Sheets

Sheet copper, hot rolled, 24 oz., 22¾c. to 23¾c. per lb. base.
Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.

## Tin Plates

Bright Tin	Grade "AAA" Charcoal 14x20	Grade "A" Charcoal 14x20	Coke—14-20	Primes	Wasters
			80 lb..	\$6.05	\$5.80
			90 lb..	6.15	5.90
			100 lb..	6.25	6.00
IC..	\$10.00	\$8.50	IC..	6.40	6.15
IX..	11.50	10.00	IX..	7.40	7.15
IXX..	13.00	11.25	IXX..	8.40	8.15
IXXX..	14.25	12.50	IXXX..	9.40	9.15
IXXXX..	16.00	14.00	IXXXX..	10.40	10.15

## Terne Plates

8-lb. coating, 14 x 20

100 lb. ....	\$7.00
IC .....	7.25
IX .....	7.50
Fire door stock .....	9.00

## Tin

Straits, pig .....	36c.
Bar .....	43c. to 47c.

## Copper

Lake ingot .....	15¼c.
Electrolytic .....	15 c.
Casting .....	14¼c.

## Spelter and Sheet Zinc

Western spelter .....	8 c. to 8¼c.
Sheet zinc, No. 9 base, casks.....	9c. open 9½c.

## Lead and Solder\*

American pig lead.....	6¼c. to 7c.
Bar lead .....	8c. to 8¼c.
Solder, ½ and ½ guaranteed.....	25c.
No. 1 solder .....	23¼c.
Refined solder .....	20¼c.

\*Prices of solder indicated by private brand vary according to composition.

## Babbitt Metal

Best grade, per lb.....	75c.
Commercial grade, per lb.....	35c.
Grade D, per lb.....	25c.

## Antimony

Asiatic .....	6½c. to 7c.
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## Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb....	25c. to 27c.
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## Old Metals

Business is quiet but the market is a little firmer this week. Dealers' buying prices are as follows:

	Cents Per Lb.
Copper, heavy crucible .....	11.75
Copper, heavy wire .....	11.25
Copper, light and bottoms .....	9.25
Brass, heavy .....	6.25
Brass, light .....	5.25
Heavy machine composition .....	8.50
No. 1 yellow brass turnings .....	6.50
No. 1 red brass or composition turnings.....	8.00
Lead, heavy .....	4.50
Lead, tea .....	3.50
Zinc .....	3.25



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